

Band Manager

Band Management Program

v 2.1

User's Manual

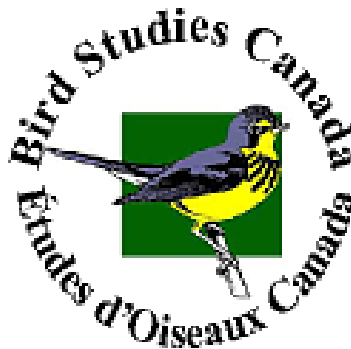


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Band Manager

Band Management Program

a product of the
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and the
United States Bird Banding Laboratory

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Band Manager

Band Management Program

Overview

Band Manager is a Windows type program for the complete management of bird banding data. Its main purposes are: to provide for the rapid entry and editing of both original banding data and recapture data, to maintain a complete band inventory of both used and unused bands and to produce both paper and electronic schedules for submission to the appropriate banding office. Band Manager goes far beyond these basic functions, however, by including a variety of features for simplifying and assisting with data entry, ensuring data integrity, providing basic data summaries and reports, and assisting with many other data management tasks. The major features of the program include:

A. Band Inventory

The band inventory allows you to keep track of all bands that have ever been issued to you, including number, size, type, and current status. Current status includes whether the band has been used and entered on the computer; whether it has been scheduled, and if so when; what data file the original banding data for that band is found in and so on. You can quickly view the original banding data associated with any of the used bands in the inventory; obtain a summary of bands according to specified criteria (including used status, size, type, etc.); add new bands; or make corrections to the size, type or other information for previously entered bands.

B. Entry, Editing and Import of Original Banding Data

Entry and Editing

Band Manager has a flexible yet powerful data entry module. You can design your own data tables to suit your needs, with a mixture of required and optional fields. The required fields are predefined (e.g. band number, species, year, month, day, etc.). Some commonly used optional fields are also predefined (e.g. wing, weight, time), and you can define more if you require them. You can arrange the order of the fields to match your field data forms. Data can be stored in multiple files with the same or different formats. Once a data file has been created, data entry is fast and easy. Features to speed data entry include Auto Copy (to automatically copy fields that rarely change), Blank Copy (to optionally copy the value from the previous record when a field is left blank), Auto Append (to automatically append a new record and increment the band number to the next band in the current series), Batch Entry (to enter a series of bands with the same information), and many others. Band Manager also has powerful editing tools including a Global Search and Replace feature, a Find or locate feature and a data Filter. Band Manager provides extensive data checking capabilities to ensure data integrity. Individual fields are checked for validity as they are entered and you can provide tables of valid values for your own user-defined fields. Upon completion of the record, the age-sex-month combination, band size, and optionally wing length, weight and user-defined measurements are checked against the species. Recaptures can also be checked against the original banding or optionally against all other recaptures. Some of these checks may be turned off during data entry, and checked in batch mode afterwards.

Imports

An import facility has been included in Band Manager for importing banding data that was entered using another program. If you import all of your old data you will improve recapture checking, and be able to include the records in data summaries or reports (including schedules).

Printout and Export Features

Band Manager has a flexible data printing feature that allows you to select the data fields to be printed, and the order that the fields will appear on the printout (e.g. for proof-reading). By using a Filter, you can select which banding records are included in the printout. Both the font size, and page orientation (landscape or portrait) can be adjusted.

An export feature has also been included in the program for exporting banding data to a variety of other data formats. This is very useful if you wish to do more sophisticated analyses of your banding data in another software package. As with the printout feature, you determine which fields are to be included and their order in the exported file. A Filter may be used to select which records are included.

To help you protect your banding data, Band Manager provides its own Backup and Restore facility. This feature will back up data to any other device including diskette, tape, network or other external device, and will also restore your data files if anything happens to them.

C. Recaptures

Recaptures are entered in the same manner as original banding data, with the exception of the disposition code, which indicates the type of record (new banding, recapture, etc). Once entered, Band Manager has the ability to check the recapture record against the original banding (and optionally against all recaptures of that band) for inconsistencies in age, sex, species, date or condition. You may also view a complete summary or “history” of original and recapture records for any band number.

D. Schedules

Band Manager will produce both the paper schedules and electronic output files for submission of banding data to the Canadian Bird Banding Office or the U.S. Bird Banding Laboratory. Band Manager will also produce a copy of the Note For File automatically after completion of schedules. Canadian banders may submit their banding schedules via E-mail or diskette, without the need to submit paper copies, but for now U.S. banders must submit both paper and electronic copies.

E. Summaries and Reports

Band Manager allows you to produce a few basic data summaries and reports. These include: numbers of birds by age and sex for each species; number of new bandings, recaptures, etc. per species; numbers of each species per month; statistical summaries (mean, minimum, maximum, etc.) by species for a numeric field (e.g. wing length); numbers of birds handled by each bander; and listings of all captures for individual birds. All of these summaries can be “filtered” by criteria such as date, species, age, sex, bander, band sequence, etc., and most can include more than one data file at the same time. The reports can be viewed on screen, printed, or exported to a variety of other data formats.

F. On-line Help

Band Manager has context sensitive on-line help. The help files contain most of the information found in this manual, with additional details on some features.

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Band Management Program

1.0 – Getting Started

To begin using Band Manager, you first need to install the program on your computer. After installing the program, and starting it for the first time, you will need to prepare the program for use. After that, you will be ready to enter your data. The following summary will guide you through installation, starting the program for the first time, and the basic steps needed to enter and edit your data, and produce banding schedules for submission to the appropriate banding office. Each of the steps in this summary provides you with a short explanation of what needs to be done, and refers you to the appropriate section of this manual or on-line help for complete instructions on completing that step. This summary includes only those steps that must be completed in order to enter and schedule your data. Band Manager goes far beyond these capabilities, however, and you should browse through the remainder of the manual for details on the many utilities and time saving features that the program has to offer.

1.1 – Installing Band Manager

Band Manager will come to you on CD-ROM, diskette or as a download from the Internet. Before you can go any further, you need to install the program onto your computer. See **Section 2.0** for instructions on completing this step. After installing Band Manager from the CD, you will need to get the most recent update. Since the CD was released in June of 1999, there have been several revisions of the program which include updated lookup tables and minor improvements to the program and fix any bugs that were detected. Therefore it is very important that you obtain the latest update. See **Section 2.3** for instructions for obtaining and update.

1.2 – Starting Band Manager

After installing Band Manager, you need to start the program. If Setup created an icon on your desktop, or you created one (see instructions in **Section 2.2** if you need to do this), then you simply need to **double-click** on the Band Manager icon to start the program (as with any other icon on your desktop). If you do not have an icon on your desktop, then you can start Band Manager by clicking the **Start** button at the lower left of your screen and selecting **Run** (in Windows 3.11, Start is found in the File menu). At the prompt, type **c:\bandmgr\bandmgr** and press **Enter**.

After pausing briefly on the title screen, the Band Manager **Main Menu** screen will appear. It is from this screen that you will access all of Band Manager's features and functions.

If this is the first time that you have started Band Manager, then you will receive a **Welcome Screen** (over top of the Main Menu screen) welcoming you to the program. The Welcome Screen will encourage you to work through the "**Automated Setup**". This automated sequence will step you through the setup requirements of the program (the next several steps below) and will explain them as it goes. You are **strongly encouraged** to follow the Automated Setup because it will ensure that the program is properly set up for you.

1.3 – Setting Program Options

The first step in the setup is to enter your Permit number, name and initials, and to set some program options. If you are following the Automated Setup, Band Manager will open the Options screen for you. If not, then from the Main Menu, click **Utilities**, and then **Setup Options**. On this screen, you need to enter **your Permit Number**, and **Permittee Name** (exactly as it appears on your MASTER permit), and some **initials** to designate the station or master permittee. If you are unsure of the permit number at this time, enter “00000” -DO NOT enter any other fake permit number! **If you do not enter a permit number, you will not be allowed to exit this screen.** The permit number is checked during scheduling and at that time, you will be reminded to correct it if you entered “00000” during setup (which is why you should only use 00000 if you are unsure of your permit number). Be sure to enter all five digits of the permit number; if your permit number has less than five digits, enter a leading zero(s) to complete all five digits (e.g., 05986 or 00762).

At this time, you should also check the other options on this screen including date, sex and age format; species display language; Alpha Code or Species Number; and the Country that you band in (USA or Canada). See the on-line help for more details on some of these options. These options can also be changed later, so do not worry if you are unsure of which options you want at this time. Click **Done** to return to the Utilities Menu, and **Done** again to return to the Main Menu.

1.4 – Enter Location Code(s)

The next thing that you need to do is enter your **Location Code(s)**. Every banding record must include a banding location, which is entered by a location code (saving you from having to enter the latitude and longitude, region code, etc. for every record). Band Manager checks to make sure that every location code that you use during data entry is included in the **location table**. The location table stores the location codes, as well as all of the geographical information for each location (lat/long, province or state code, region and direction code). If you are using the Automated Setup, then after closing the Options screen, you will be asked if you want to add locations to the location table. To do this manually, then from the Main Menu click **Utilities, Program Lookups**, and finally **Locations** to open the location table. See **Section 8.1.2** of the manual, or the online help for instructions on completing this table. When you are finished, click **Done** until you are back at the Main Menu.

1.5 – Building the Band Inventory

Next, you may want to add some or all of your bands to the inventory. During data entry you may only add new banding records for bands that are in your inventory. You can add bands to the inventory during data entry, but it is easier to do so in advance. Again, if you are running the Automated Setup, you will be prompted to do this. Otherwise click **Inventory** from the Main Menu to open the Band Inventory Screen. See **Section 3.0**, or the on-line help for detailed instructions on developing your band inventory. If you are importing data that are already computerized, you may be able to create the inventory automatically – see **Section 10.0** for details.

1.6 – Adding Remark Codes

Remarks are extra pieces of information that you provide with a banding record for printing on the bottom of the schedule. These are only for remarks that you wish to report to the banding office (e.g., a remark to explain why you used a non-standard band size or a particular status code). Band Manager uses a 2-character code and a look-up table, so that you do not need to retype the complete

remark for every banding record. This is particularly useful for remarks that you would use on a regular basis. If you have standard remarks that you know you need to use, you should add them to the Remarks table before beginning data entry. The Automated Setup will prompt you to see if you want to enter Remark codes during setup. If you are not using the Automated Setup, then you may add Remark Codes by clicking **Utilities**, **Program Lookups** and **Remarks** from the Main Menu. You can also open this table during data entry, by double-clicking in the Remarks field. See the instructions in **Section 8.1.3**, or the on-line help for assistance in completing this table.

1.7 – Creating a Data Table

The last task before entering banding data, is to create a data table. Band Manager provides a basic table structure including the required fields and a few commonly used optional fields. You may add more fields, drop any of the optional fields, and change the order of the fields for display. The Automated Setup will prompt you to create a data table, or you can do it yourself by clicking **Utilities** and **Table Designer** from the Main Menu. See **Section 7.0**, or the on-line help for instructions on creating tables. If you like, you can create multiple tables to help you organize your data (i.e., a table for passerines, a table for hawks etc, or a table for each year). After creating a table, the Automated Setup will be complete.

1.8 – Data Entry and Editing

Use the Data Entry and Editing module to enter and edit all of your data into a data table that you created in step 1.7. Open the Data Entry and Editing screen by clicking **Data** from the Main Menu and selecting the data file that you created. See **Section 4.0** for details on using this module.

1.9 – Produce Schedules

Once you have entered all of your data, you need to schedule the data and send it to the appropriate banding office. See **Section 5.0**, or the on-line help for assistance with preparing for and producing schedules.

The remainder of this manual explains these nine steps in complete detail. As well, there are detailed instructions on using the many optional features and utilities that Band Manager has to offer.

All of the instructions provided in this manual are also available in the on-line help files.

2.0 – Installing Band Manager

2.1 – Minimum System Requirements

Band Manager was written for use under Windows 3.11 or Windows 95/98/NT. The absolute minimum system required to run Band Manager is a 486/66 computer with 8 megabytes of RAM. However, most users will be unhappy with the performance of the program on such a system and we recommend **at least** a 486 with 16 megabytes of RAM, and **strongly encourage** the use of a Pentium based computer with 16 megabytes or more of RAM. Hard disk space required will depend on the amount of banding data you enter (at least 1-2 megabytes per 10,000 bands depending upon your extra fields), but the software itself will occupy 8-10 megabytes of space.

2.2 – Installing Band Manager on your Computer

Band Manager will be available on CD-ROM or as a download from the internet. A diskette version will also be available by special request.

If you are installing Band Manager from CD-ROM or diskette, place the CD or disk into the drive. With a CD, if you have “Auto Run” enabled in Windows 95/98, the Band Manager Setup program will automatically start. If you do not (nothing happens when you put the CD in), then, click the **Start** button at the left end of the task bar at the bottom of the screen (Windows 95/98 users) and select the **Run** option (with Windows 3.11, **Run** is found under the **File** menu). On the command line, type **d:\setup** (use the drive letter that is appropriate for your system which could be d: for a CD install, or a: or b: for a diskette install) and then press **Enter**.

If you downloaded the program from the Web, then you first need to run the file that you downloaded (bmsetup.exe) using the **Start/Run** option (as above). During the download from the web, you should have made note of where you stored the file (bmsetup.exe) so that you can now run it with the **Start/Run** option. When you run bmsetup.exe, you will be prompted with a screen indicating that it wants to unzip files to a directory called c:\bmsetup. Accept this default directory by clicking **Unzip**. When it is finished, click **Close**. You can then use the **Start/Run** option (see paragraph above) to run **c:\bmsetup\setup**, which will get you to the same point as with the CD.

At this point (in all cases), the Band Manager Setup program starts and asks you to enter your name and organization (with Windows 95/98 the information may already be filled in and you will simply need to confirm it). You are then shown the default directory where Setup will install Band Manager (c:\bandmgr). You can change the directory if you need to, but we strongly recommend that you accept the default directory, and the instructions in this manual assume that you do. PLEASE NOTE - if you change the directory where you will install Band Manager to, then ensure that the directory that you install Band Manager to follows traditional DOS (or Windows 3.11) file name rules - that is that the directory names cannot exceed 8 letters, and no symbols or spaces can be included. If you use directory names that are longer than 8 letters, Band Manager will not run properly. So, for instance, you cannot install Band Manager to c:\Program Files\bandmgr since the directory "Program Files" is longer than 8 characters and contains a space.

After asking you to confirm your entries, the program tells you to click **on the large button to begin installation**. At this point, click **on the picture of the computer**, and Setup will install Band Manager

onto your computer. If you are installing from diskettes, Setup will prompt you for each of the diskettes in order until it has completed installation.

Once complete, you will be returned to your Windows Desktop. There should be a Band Manager icon on your desktop. However, if you did not install to the c:\bandmgr directory, the icon may not be there, or may not work properly. If this is the case (or one simply did not appear for unknown reasons), then you can create an icon. To do this with Windows 95/98, point your mouse at a blank part of your Desktop (not at any existing icons) and **Right-click** your mouse. You will be given a list of options – choose **New**. At this point you will be given another list of options. Choose **Shortcut**. You will now be shown a window to input the command line for the program. Enter **c:\bandmgr\bandmgr** and click **OK** (if you changed the default directory during installation, then you should modify this line appropriately). You will now be shown a window to enter a name for your shortcut. Enter **Band Manager** and click **OK**. Your shortcut will be created and placed on your Windows Desktop.

If an icon was placed on your desktop but does not work (because you installed Band Manager to a directory other than c:\bandmgr, or for some other unknown reason), then point at the icon with your mouse and **Right Click**. You will be given a list of options. Click **Properties** (left click) and then click **Shortcut**. On this screen, ensure that the correct path is listed in the **Target** and **Start In** boxes. For an installation to the c:\bandmgr directory, the **Target** should read c:\bandmgr\bandmgr and the **Start In** box should read c:\bandmgr. Correct the drive and directories as necessary to accurately reflect your setup. Click **Ok** when you are finished. The icon should now work properly; if it does not, try creating a new one (see paragraph above).

Windows 3.11 users can also have an icon placed on their desktop. To do this, first open the folder where you want to put it (such as **Applications**). Then choose the **Add** option under the **File** menu at the top of your screen. Choose **Add program item**. After this, a window will come up asking for a **Description** (enter “**Band Manager**”), a command line (enter “**c:\bandmgr\bandmgr**”) and a working directory (enter “**c:\bandmgr**”). The icon will then be placed in the folder that you selected. See the on-line help in windows for more information on creating icons.

You have now completed the installation of Band Manager.

2.3 – Updating Your Copy of Band Manager

Since the release of Band Manager in June of 1999, there have been several revisions of the program. These revisions include updated lookup tables, incorporate some minor revisions and improvements to the program and fix any bugs that have been reported. For these reasons, it is very important that you update your version of Band Manager on a regular basis.

Updates can be obtained by download from the internet, or by contacting your banding office for a diskette version. The updates are much smaller than the original install, and so a download will generally not be a problem for most people.

To update your copy of Band Manager, follow the following steps:

1. Ensure that Band Manager is not running.

2. Go to the web site: <http://www.pwrc.usgs.gov/bbl/resources/bandmgr/bandmgr.htm> and scroll down to the "Downloading an Upgrade to Band Manager" section. Choose which update you wish to download (Win 95/98 or Win 3.11) by clicking on the appropriate link. Once you have done this, a window should open in your web browser asking if you want to open the file or save it to disk. **SAVE IT TO DISK.** The file is called "bmupd.exe", and is the update for Band Manager. You will need to choose a destination to save the file to on your hard drive. **DO NOT SAVE IT IN THE BAND MANAGER DIRECTORY** (c:\bandmgr) but instead, choose a directory not normally associated with Band Manager such as c:\temp. Remember where you saved the file and proceed with the download.
3. After the download is complete (it can take up to a half hour for some users depending on your internet connection), disconnect from the internet. Now, using Windows Explorer, locate the bmupd.exe file and run it by Double Clicking on the file name. You will find the file in the directory where you saved it. **ALTERNATIVELY**, you can run the file by clicking the Start button at the bottom left of your screen, and selecting Run. At the prompt, type in c:\directory\bmupd.exe (where directory is the name of the directory where you saved the file during download).
4. After running the file, a window will open. This is a WinZip window. It will indicate that it will unzip files to the c:\bandmgr directory. **PLEASE NOTE**, if you did NOT install to c:\bandmgr, then you should change the target directory in this window before proceeding. You may have installed to a different directory **OR** a different hard drive. Next, click the Unzip button. Files will then be unzipped to your hard drive, and a message should appear saying "## files unzipped successfully" (the ## will be a number that varies with the version of the update). You can then click Ok, and then click Close. You are now finished. You can then start Band Manager and check the About screen (by clicking the About button found on any screen). The date should now read March 27/2000 in this window. If it does not, then the update was not completed correctly.

Bookmark the update web page in your internet browser, and check regularly to see if another update has been issued (the update page lists the date of the most recent update). **NOTE:** Each update contains **ALL** of the changes to the program since the original version, so you **DO NOT** have to have downloaded every one of the updates to be current.

3.0 – Band Inventory

One of the first tasks you need to do is develop your band inventory. Band Manager maintains a detailed band inventory module for tracking all of your bands. To open the band inventory, click **Inventory** on the Main Menu. The band inventory screen has a number of command buttons, and a data table grid to display your bands. To protect the integrity of your data, this table cannot be edited directly. All additions, deletions, changes, etc. are controlled through the command buttons to the right of the form.

3.1 – Band Series

All changes or additions to the inventory are done on the basis of a band series. A band series is a group of bands that have a common prefix (usually the first three or four numbers on the band) and consecutive suffixes (last 5 numbers on the band). For instance, the bands 1234-99001 to 1234-99100 comprise a series of 100 bands because they have the same prefix, and sequential suffixes. Generally you will receive bands from the banding office in series of 50 or 100 (although larger bands may come in smaller series). You may get sent several strings of 100 bands in consecutive order, and your series may therefore be several hundred or more bands. A single band would be a series of one, with the start and end suffixes being the same. Changes or additions can be made to a band series of any length.

3.2 – Adding Bands to the Inventory

To add a band series to the inventory, click **Add Bands**. A small form will appear where you enter the band series prefix, the start and end suffixes, and the band size. The band size will be checked to ensure that it is a valid code (though it is up to you to make sure it is the proper size for the bands that were issued to you). **Double-click** on the band size field for a look-up table listing all available band sizes. If you do so, you can select your band size from the lookup table and click **Done**. The size will be entered to the box automatically. If your band prefix is only three numbers, enter a leading zero (e.g., 0345) – see **3.3 Band Numbers** for other situations. If the bands **are not standard butt-end** bands, then you should also select a band type (such as Lock On, Rivet etc.) by clicking the arrow on the right-hand side of the type box and selecting the desired type from the list. Finally, you may also add a 4 character User Note or code if you want to indicate something about that series of bands for your own use. This can be useful to keep track of which bands have been given to a sub-permittee by including the sub-permittee's initials here. Click **Done** and a new record will be added to the inventory for EACH of the bands in that series. Unlike some other band management programs that store the bands by their series, Band Manager stores a record for each band. This is done so that as the bands are used, Band Manager can keep track of which data file you have the banding information stored in, when you scheduled each band, and whether each band has been recaptured or replaced.

As you enter a new band series, Band Manager checks that none of the bands in that series are already in your inventory. If any are found, you will be told the series cannot be added. However, you will be given the option of having Band Manager filter your records to that new series so that you can see which bands are already present. It is possible that you typed this new series incorrectly and managed to match another series that you already have in your inventory, or that you mistyped the bands in a previous add operation.

Once you have entered all of your bands to the inventory, click **Done** to return to the Main Menu.

Helpful Hints: We recommend that you enter all of your band series into the inventory as soon as you receive them. This way, Band Manager can help you keep track of the number of unused bands that you still have in your possession, and all of the band numbers will be there when you have used the bands and are ready to enter data. If you have subpermittees, you can also keep track of the bands issued to each subpermittee with the notes field (see below).

3.3 – Band Numbers

Band Manager and the banding office data files require a 4-digit prefix, and a 5-digit suffix. Most bands currently in use have either a 3- or 4-digit prefix and a 5-digit suffix. If the prefix has only 3 digits, you should precede the prefix with a '0' to make it 4-digits. For example, prefix '861' becomes '0861'.

Some older bands have a 2-digit prefix with either a 5- or 6-digit suffix. If the suffix has only 5 digits, then a zero should be added to both the front and back of the prefix. For example, prefix '56' would become '0560'. If the suffix has 6 digits, the first digit of the suffix is always a '1'. The '1' should be moved to the prefix, and a leading '0' added. For example, a prefix of '56' becomes '0561'. Very few of these bands still remain, but you may want to enter some historical records for these band numbers.

Hummingbird bands have a letter prefix of X, T, or Y. These should be translated into a 4-digit prefix as follows: X = 7000, T = 8000, and Y = 3000.

3.4 – Maintaining and editing the Inventory

All ordinary maintenance of the inventory (keeping track of which bands have been used, when they were scheduled, etc.) is done automatically by Band Manager. However, if you discover that you made an error entering the data (e.g., wrong prefix, or incorrect size), you return a series of bands to the banding office, or you later decide to issue bands to a subpermittee then you may need to change some information. You can do this by deleting the band series and starting again, or by using the options for editing size, type or user note.

To remove a band series (when NONE of the bands have been used), click **Remove Bands**. You will be shown a form similar to the Add Bands form, except that you only need to enter the prefix, and start and end suffixes. Click **Done** to remove the bands. This option should only be used to remove band series that were typed incorrectly, or to remove bands that you are no longer responsible for (e.g. returned to banding office or transferred them to another master permittee). If you are giving bands to a sub-permittee, you should leave them in your inventory and mark them with a User Note (see below). You can produce summaries of all the bands with the same User Note.

If you want to edit the band size, click **Edit Size**. In this case you will enter the prefix and start and ending suffixes, and the CORRECT band size for that series. Click **Done** to change the size for the entire series.

You can edit the band type in the same way. You may need to do this if you called a series of bands the wrong band type, and need to correct it. This is particularly useful for making the correction after you have used some of the bands, since you cannot delete and re-add a series of bands if some of them have been used. You can, however, edit the band type (and size) after some of the bands have been used. Click **Edit Type** to change the band type of a series of bands.

The Edit Notes feature is provided so that you can assign a four-character code to some of the bands in the inventory. This code is generally used to tell you something about those bands, such as the initials of a sub-permittee or a particular banding station to whom you assigned the bands. Click **Edit Notes** to add a code of up to four characters to all of the bands in a series. The Edit Notes feature will allow you to change the note based on a band series (as with edit size or type), or based on the current filter. If you wish to change the note based on a band series, enter a band prefix and start and end suffixes as you would with the Edit Size or Edit Type features, and the new Note, and click **Done**. If you would like to change the note for ALL BANDS that match the current filter, click the **By Filter** option at the bottom right of the window, and enter only the new User Note. Then click **Done** to have the notes changed for ALL bands under the current filter. This latter method is particularly useful for changing the note back to blank (from sub permittees initials) for all USED bands (as they don't have them anymore).

3.5 – Helpful Features

Having a separate record in the inventory for each band is necessary for Band Manager to track the records, but can be overwhelming when you want to look at specific bands. For this reason, there are features for finding specific bands, summarizing the band inventory, sorting the bands or reducing the number of bands that you see by filtering the band inventory.

Find

You can use the Find feature to locate a record for a particular band number. Although you cannot edit bands in the band inventory directly, you can place your cursor on the grid. Set the cursor in the column that you want to search (such as band number) and click **Find**. You will be prompted to enter the value you want to search for, and then Band Manager will locate the first record matching that value. Click **Again** to search for the next incidence of that value. See **13.1 Searching in Band Manager** for more help on using the Find feature.

Filter

The Filter will allow you to view only those bands in the inventory that match certain criteria. Criteria may include one or more of such things as band size, type, prefix, suffix, whether it has been used, or whether it has been scheduled (and if so, when). You may also filter by the User Note. Click **Set Filter** to open the Filter Designer form. If you have already set a Filter, click **Clear** to turn off the filter. See **9.0 Filters** for instructions on using filters.

Sorting

You may sort the band inventory in one of three ways: by band number, size, and used status. To sort the band inventory, click the header of the column that you want to sort by. For example, click the word **Bandnumber** to sort the table by band number (this is the default). In the same manner, click **Size** or **Used?** to sort by one of those fields. The sort order for Size and Used? will be that field first, followed by band number.

Summarize

Another feature that can help you view your data is the Summarize option. Click **Summarize Bands** to view a summary of all the bands currently selected under the present filter (all bands if you have not invoked a filter). For instance, you may want to set a filter to all unused bands, and then click **Summarize Bands** (the summary screen describes the current filter at the top of the screen). A

summary of unused bands will appear by band series and size (very useful when you are ordering more bands!). As well, a second summary will be shown which is a count of all bands under the current filter by size alone. This means that a summary of unused bands will show you all band series that you have remaining (they may be part series if some of the bands have been used) as well as a total count of the number of unused bands for each size. You may print a report of the series summary, the count summary or both. You may also export them to a variety of file types (see **11.0 Exporting Data**). Click **Done** to return to the band inventory.

Resetting the Schedule Date

If you have already produced schedules for bands, but the paper or electronic schedules become lost or destroyed before you send them to the banding office, you may need to re-create the schedules. You can do this either by redoing all bands scheduled on a certain date (see **5.0 Producing Schedules**), or by going to the band inventory, and re-setting the scheduled date. In the band inventory, all bands show a scheduled date once a schedule has been produced for them and Band Manager ignores those bands during future scheduling. You may change this date back to blank using the **Reset** option on the band inventory screen. You may Reset the schedule date by band series, or by schedule date by selecting one of these two options. If you choose to reset by band series, you will be asked for the prefix and start and end suffixes for the series of bands to reset. Band Manager will then reset the dates to blank. To reset by date, select **Reset by Date**, and then enter the schedule date that you want to reset to blank. REMEMBER, that all bands with that schedule date will be reset, so use caution! Once you have reset the bands that you want to, you may then produce schedules as before for those bands. This feature is most useful if you need to recreate schedules for a particular series of bands and want to schedule additional bands at the same time. **Do not** re-submit schedules that you have already sent to the banding office unless asked to do so.

Print and Export

Two other features on the inventory form are the **Print** and **Export** options. These options will print or export the band inventory data (according to the current filter). See **11.0 Exporting Data** for instructions on exporting data to other file formats. To create a printout of your inventory, click **Print**, after which you will be prompted to confirm your printer selection and then the data will be printed. **Beware that this will produce a separate record for every band in the inventory under the current filter, which may be a very long print-out.** The number of bands under the current filter is shown in the lower right corner of the screen. You are more likely to want to print a summary of the bands – see **Summarize** above.

Finding the original banding record

If you want to determine which data file contains the original banding record for a specific band, place your cursor on the record for that band (use **Find** if necessary – see above), then click **Data File?** and the name of the file containing the original banding record for that band will be shown. If the data file is available and you do not already have the Data Entry and Editing form open, you will be asked if you want to open the data file and view the original banding record for that band. If you answer Yes, the band inventory will close, the appropriate data file will be opened in the Data Entry and Editing form, and you will be placed on the proper banding record.

4.0 – Data Entry and Editing

The central feature of Band Manager is its data entry and editing module. The same form is used to enter new data (original banding or recapture records) and to edit previously entered data. See **6.0 Recapture Data** for further information on entering recapture data.

4.1 – Starting and Leaving Data Entry

To open the data entry and editing module, click **Data** from the Main Menu. You will then be prompted for the name of the file to open (i.e., one of the files that you have created). If you have not yet created a file, see **7.0 Creating Tables**. Select a file by clicking on its name and then clicking **OK** or by **double clicking** on its name. At this point, Band Manager will load your file into the Data Entry and Editing form. This form has all of the fields that you included when you created the file, in the order that you organized them. If you wish, you can re-arrange the position of these fields on the screen – see the on-line help under **Moving Fields** for instructions on doing this.

In addition to your data fields, there are two rows of command buttons, and some information boxes at the top and bottom of the screen. The actions on the command buttons can be activated by clicking on them with the mouse, or in some cases, by typing **Alt** and the **underlined** letter (e.g. **Alt-N** will append a **New** blank record). The information boxes include the name of the file that you are working in, the band size of the current band number (once you input one), and the current number of records in the present file. These information boxes cannot be edited.

The first time that you open a new user table, you will be notified that your table is empty. Band Manager will ask if you want to append a new record and begin entering data for it. If you click **Yes** then the Data Entry and Editing form will open with a new blank record, and your cursor will be placed in the first field, ready to start data entry.

If you open a table that already has records in it (that you have previously entered or imported), the screen will open showing you the first record in the file. By default, the records will be arranged in the order that you entered them, but you can sort them by band number, by clicking the **Sorted** button on the lower command bar. You can move around your data file using the arrow buttons on the lower left of the screen (see **4.4 Moving around your data file**, below). To start entering data, click **New** to append a new, blank record to your data file. Your cursor will be placed on your first data field.

To enter data, simply type the appropriate data in each field. See **4.2 Entering individual data fields** for information on the meaning and content of individual fields. There are a number of shortcuts available to speed up data entry, such as automatically appending a new record with the next sequential band number, copying information from the previous record, etc. See **4.5 Data Entry Shortcuts** for details. When you have finished entering a record, click **New** (**Alt-N**) to start the next new record (unless you have **Auto Append** turned on, in which case this will happen automatically).

To leave the data entry module, click **Done** and you will be returned to the main menu. **If you are entering new data, you must complete the record before you can leave it.** If you do not want to complete a record that you started (e.g., you clicked **New** by mistake), simply click **Delete**. The next message depends upon which field you were editing, but usually Band Manager asks you to confirm that you want to delete the record. If you click **Yes**, you will be returned to the last remaining record in

the file, from which you can click **Done**. If you get stuck in a data validation check (e.g., warnings about band size, or age-sex-month checks that you are not sure how to deal with), you can click **Verify** and turn off the within-record or recapture checks. However, if you do this, you will eventually need to run the checks in batch mode, before you can schedule the records for the banding office. See **4.7 Data Integrity Checks** for details.

4.2 – Entering individual data fields

To enter data into a field, simply place your cursor on that field, and type the appropriate value. When you have finished, press **Enter** or **Tab** to move to the next field in sequence, or use your mouse or an arrow key to select another field. If you have **Flow Control** turned on, the cursor may flow automatically to the next field (see **4.5 Data entry shortcuts**). Once your cursor lands on the **Disp.** or **Band Number** fields, you must enter a valid value before you can move to another field (or press any button). For most other fields you can leave the field blank while entering data (unless you created your own lookup table without allowing a blank value – see **8.2 User Defined Lookups**). However, all of the required fields must be completed before leaving the record. Many of the required fields on the data form check their valid values in a lookup table. Similar lookup values can be added for user-defined fields. These fields include: alpha code (and species number), disposition code, bird status code, location code, remark and initials. To open a lookup table, **double click** on the field that you want to look up. Another form will open, displaying the lookup table. If you select a value from the table and click **Done**, the value will be inserted into your data record. For those fields whose lookup values can be changed by the user (such as location and remarks), the lookup function will allow you to add new values, or modify existing ones. The sections below describe the individual fields.

Band Number

If you are entering new banding records, you must add a valid, unused band number that is already in the band inventory. Once you have entered the band number and try to leave the field (e.g., by pressing Enter, Tab or with the mouse), Band Manager will check that band number against the band inventory. If the band is in the inventory, and not yet used, Band Manager will mark the band as Used in the inventory and allow you to continue. Otherwise, it will ask you if it was meant to be a recapture. You can also double-click on this field to select the next available band of a particular size (see **Next Band** under **Data Entry Shortcuts**). If the band number you want to type has not yet been added to the inventory, you should cancel or Delete this record, return to the main menu, and open the Inventory to add the required band series (see **3.0 Band Inventory**).

If you attempt to leave the band number field without completing it, you will be notified that you require a complete band number and asked if you want to **Retry** (enter a band number) or **Cancel** (Delete the current banding record). If you do not want to keep this banding record, choose **Cancel** and it will be deleted.

You must enter all nine digits of the band number. If the band has only a 3-digit prefix (e.g. 8 digits total), you should precede the prefix with a “0”. For example, band 861-12345 becomes 0861-12345. A hyphen (“-”) will automatically be placed between the prefix and suffix as you type the band number, so you do not need to type the hyphen. If the suffix is all zeros (00000), this hyphen will be replaced with a ‘1’ because this actually represents the 100,000 band in the series (i.e. it comes after 99999). For further information on Band Numbers (2-digit prefix, hummingbird bands) see **3.3 Band Numbers**. For entering new banding data, you may be able to speed up data entry using **Auto Append** or other shortcuts (see **4.5 Data Entry Shortcuts**).

Disposition Code (Disp.)

The Disposition Code is an indication of how the band was used (this was known as a “Function Code” in Band-Ops). For a newly banded bird, the **disposition code is normally 1**. The other possible values are: 4=Band Destroyed, 8=Band Lost, 9=Record Lost (e.g., you used the band on a bird, but lost the information), 5=Replacement Band, 6=Added Band, D=Double banded (First Band), S=Double banded (Second Band), R=Recapture (your own band), F=Foreign Recapture (somebody else’s band). If you cannot remember a disposition code, simply use the table lookup function (double click on the field) to bring up a table of the codes and their meanings. You can only input a code that is included in the lookup table.

For codes 4, 8, and 9, the species codes are automatically changed to BADE, BALO, and RELO and the only information printed on the banding schedule will be BAND DESTROYED, BAND LOST, or RECORD LOST, respectively, regardless of what is typed in the other fields. However, you can still fill in other fields if you want to (e.g., date or location the band was lost). Under certain circumstances for code 4 (e.g., if a band was destroyed because a bird died after it banded) you can also type a species code, measurements, date, etc. but this information is only for your own records and will not appear on the schedule (for further information on dead birds see **Condition** and **6.0 Recapture Data**). For further information on codes 5, 6, D, and S see **4.3 Replacement/Double Bands**, and for codes R and F see **6.0 Recapture Data**.

Species Code

Either the alpha species code or the species number fields must be input to identify the species of bird being banded. Once one of these is entered, Band Manager will automatically fill in the other field (since both are used on schedules). During the original setup you should have chosen which of these fields you generally use (under **Utilities, Setup Options**). That will be the field where Band Manager will stop for you to input data, although you can reach the other field with the mouse. Band Manager will also display the full species name in the language you selected under **Setup** (as a check for the alpha code that you entered).

You can directly type a value for alpha code or species number, or use the lookup feature. **Double click** on the field to bring up the species lookup table. To find a species you can begin typing the code, search through the names (see **13.1 Searching in Band Manager**), or scroll through the table. As with the Disposition Code, you can only input an alpha code or species number that is found in the lookup table. Occasionally, you may try to input a code that you have used in the past, but are now told that it is invalid. This may be due to a recent change in nomenclature for that species. For example, Rufous-sided Towhee (RSTO) was recently split into EATO (Eastern Towhee) and SPTO (Spotted Towhee). Because these species can be readily distinguished, the code RSTO is no longer valid, and you must use one of the new codes. If a code that you enter is rejected, check the lookup table and use the Find feature to search the common names (in this case, you could search for “towhee” in the English name). Keep searching, using the cursor or the repeat search function until you find the species you want. You are not allowed to modify the species table, but if there are future changes to the names or codes, updates for this table will be made available by the banding office (see **15.0 Upgrades**). In the lookup table, birds are sorted by species number.

Date

Rather than having the date as a single date field, Band Manager uses three separate fields for year (four digits), month and day. Having the date entered as three fields allows you to take full advantage of the

Auto Copy feature, since the month and year values rarely change, thus reducing the typing you need to do (see **4.5 Data Entry Shortcuts**). If you enter a 2-digit year, Band Manager will automatically add 2000 for numbers between 00 and 07, or 1900 for other numbers (1908 was the first year of the current banding scheme in North America). Field level checks at this point will only ensure that each field is valid on its own (month between 1 and 12, day between 1 and 31). Later, during the record level check, the day and month will be compared to see if the date is valid for that month (e.g., reject June 31).

Sex

During setup you should have indicated whether you want to input sex using the alpha codes (i.e., U, M, F) or the corresponding number codes (0, 4, 5). If you chose alpha codes, then Band Manager will only accept valid alpha codes, and likewise if you selected numeric codes, Band Manager will only accept valid numeric codes. Alpha codes automatically appear on paper schedules. Note that two special codes, 6=Male and 7=Female, must be entered as numbers in either case. These codes refer to birds sexed at a later date than when they were banded (e.g., if a bird was banded as a nestling, and then later recaptured before the schedule was submitted and after it was old enough to sex). Most banders will rarely use these codes.

Age

As with sex, you should have indicated during setup whether you want to input ages using their alpha codes (i.e., U, AHY, HY, L, SY, ASY, TY, ATY) or by their corresponding number codes (0, 1, 2, 4, 5, 6, 7, 8). If you indicated alpha codes, Band Manager will only accept valid alpha codes, and if you selected numeric codes, Band Manager will only accept valid numeric codes. Alpha codes will automatically appear on paper schedules.

Status

The bird status code is a 3-digit code indicating the status of the bird at banding. **Generally a regular banding will use a code of “300”**. If you are doing any auxiliary marking, the bird was held for any length of time, you used non-standard techniques for capturing the bird, etc. you may need to use a different code. **Double click** on the field to bring up a complete list of valid codes and their meaning. Check your banding manual for further information on these codes. Note that some of these codes require you to enter a **Remark** (see below).

Location

Location codes are required to indicate where your bird was banded. To save you having to type the latitude, longitude, region, location description, etc. for every bird, Band Manager uses a 1 to 8 character code to match your bird record to a record in the location table (which has all of the location information). The code that you enter here must be in the lookup table. **Double click** on the field to open the location lookup table. You can add new values to your location table during data entry if you forgot to add the location code during setup (see **8.1.2 Locations** for details on location codes). You can mix numbers and letters for your location codes, but all letters will be converted to uppercase.

Remark

Remarks are used to provide extra information about a banding record for the banding office. In some cases, a remark is required by the banding office (for example, with certain bird status codes or if you a band size that is not normally used for a particular species). In other cases, it is optional (for example, if you have used a novel technique for determining the age or sex of a particular species, you might want to add an explanation). All remarks will appear on schedules, so be sure that your remark is relevant to

the banding office. If you want to add extra information for your own interest, use the **Note** feature, or create an “Additional Information” field (explained below).

There are two ways to add a remark to a record. For remarks that you will use more than once, you should use a Remark code. This is a 2-character code that refers to a look-up table. **Double click** to view the lookup table. Records can be added to the Remarks table during data entry, but must be in the lookup table before they can be added to the banding record. See **8.1.3 Remarks** for further details. Examples of remarks that you might want to add to a table are “Sorry, wrong band size accidentally used” or “Band size was a better fit than the recommended size.”

For remarks that are only relevant to a particular record (for example, description of injuries for a rehabilitated bird), you can use a **Custom Remark**. This will save you from having to clutter up your remarks lookup table with remarks that you only need once. To create a custom remark, click the **Remrk** button. A window will open for you to type your remark. Click **Done**, and the window will close. If you typed anything, then a pair of asterisks will appear in your remark field indicating that you have a custom remark for that field. As well, the text on the **Remrk** button will turn red indicating that the record has a custom remark. View or edit your custom remark by simply clicking the **Remrk** button again. To remove a custom remark, click **Remrk** to open the Custom Remark window, and then click **Delete**.

Alt-Band

If you replace a band, or add a second band to a bird, the Alternate-Band field is used to indicate the number of the original band. It is also used if you deliberately double band a bird. See **4.3 Replacement/Double Bands** for more details. Except in these special cases, this field should be left blank.

Colour (Color)

The Colour field (or color, depending on whether you prefer Canadian or American spelling!) is used if you have put a uniquely identifiable colour combination or auxiliary number on the bird. This field can include up to 12 characters. The information will appear on the banding schedule, so make sure that the banding office can understand your codes. You may need to provide a cover letter explaining your codes, or contact the banding office in advance to work out a coding scheme. This field is mainly used for markers that members of the public may report (e.g., uniquely numbered neck collars on geese, or patagial tags on raptors). Remember that you can only use auxiliary markers if you have special permission from the relevant banding office.

Condition (Cond.)

The Condition field is used to indicate the condition of the band/bird at the time of capture or release. This field is **NOT** reported to the banding office. You should **normally leave this field blank** (bird appeared healthy and fine on release). Other possible values, which are normally only used on recapture or recovery records, are D = Dead, I = Injured, X = Band Removed (and not replaced), U = Unknown. If you recapture a bird and it dies during handling or if you find a dead bird with one of your bands, then you may still want to enter the information as a Recapture. However, for any capture-recapture analyses of survival rates, you need to know that the bird was not released afterwards. You can indicate this by setting the Condition code to D. If a bird is injured, you should not normally put a band on it, but if it was already banded, you may want to record that it was injured. In this case, you can use an I. If the band was causing an injury, you may want to remove the band and release the bird un-banded. In

this case, use X. However, if you put a new band on the other leg, you should enter the record under the new band number instead and leave the condition field blank (see **4.3 Replacement/Double Bands**). If somebody else reports one of your birds, but you do not know whether the bird was alive or dead (this may happen with a recovery), you may want to enter the record with condition U. If you code a bird as D or X, then during recapture checking Band Manager will give you a warning if you recapture the bird again after it has supposedly died or had its band removed (this could happen if you read a band incorrectly, entered the band or date incorrectly, or if you accidentally coded a bird Dead when it was not).

If a bird dies immediately after you have banded it, you should either remove and re-use the band, or remove the band, destroy it and report the band to the banding office as Band Destroyed. If you destroy the band, you may want to enter all of the data for the bird as if it were an original band, but use a **Disposition** code of 4 (= Band Destroyed) and a condition code of D to indicate what happened. In this way, you will still have a record of having captured that bird (along with all of the normal information). The only information that will appear on the schedule is “Band Destroyed”.

If you find one of your own birds dead within 90 days of banding, in the same 10-minute lat-long block where it was banded, and if you have not yet produced the banding schedule, the banding offices would currently prefer that the band be recorded as “Band Destroyed”. In this case, you may want to use a Disposition code of 4 on the original banding, but still enter the recapture record, with a condition code of D for the occasion when it was found dead (as above). In this way, the original banding data is still available to you for your analysis. Note that this policy may change in the future.

Wing/Weight

These are optional fields, that you may wish to use if you record these measurements. If not, you can drop them when you are designing your table (or at any time in the future). They are not reported to the banding office. You can enter up to 1 decimal for either field. To do this, you need to type the decimal point. If you use these fields, Band Manager can optionally check these measurements against a look-up table to see whether they are within the normal range for that particular species and sex (see **8.1.4 Wing and Weight**).

TimeCap/TimeWt

These are optional fields, that are not reported to the banding office, and can be deleted if not wanted. They refer to the time of capture and time of weighing respectively. They are 4-characters long, allowing you to enter time to the nearest minute. You should enter all times in a 24-hour clock, so that AM and PM are not confused (e.g., 1:00 pm should be entered as 1300). Some banders record their times rounded to the nearest 10 minutes and enter them as a 3-digit number (e.g. 13:03 is entered as 130). You may do this with these fields but note that the default data checking will only check that values are between 0000 and 2400. See **8.2 User Defined Lookups** if you want to change this range. If you record both time of capture and time of weighing, Band Manager will warn you if the capture time is later than the weighing time.

HowSex/HowAge

These fields allow for the entry of one or two characters, which are used to indicate how you sexed or aged a bird. These fields are NOT required by the banding office, and you may drop them if you do not wish to use them. As well, there are no standard codes for them. However, we have provided a list of suggested codes for your use in these fields. See the on-line help under **How Aged Field** and **How**

Sexed Field for a complete list of the codes and their meaning. These codes have been built into Band Manager as a “pre-loaded” User Defined Character check. As a result, the How Aged and How Sexed fields will only allow these values by default. **HOWEVER, you may change or drop the character check on one or both of these fields if you do not wish to use these codes** (or any codes). See **8.2 – User Defined Lookups** for details on User Defined Checks and details on modifying or dropping these character level checks. If you are participating in MAPS, you may want to change the Character check to match the standard MAPS codes, otherwise you may use your own codes, or drop the check all together.

Initials

This field is used to record the initials of the person who banded the bird. This field may not be deleted (but can be suppressed), but the information is optional. It is only recorded on the schedule if the initials are for a bander with a valid sub-permit in the banders table (see **8.1.1 Banders**). You can look-up the initials of banders in your look-up table by double-clicking on the field. However, unlike other look-up tables, you are **not required** to enter initials that appear in the look-up table (although we recommend that you enter all users in the table, as otherwise you may not remember in a few years time which banders had which initials!).

User Defined fields

As described in **7.0 Creating Tables**, you may create any additional fields that you wish. The information you need to type in those fields depends upon how you define the field. You may or may not have a look-up table that restricts the values you can enter in the field (see **8.2 User Defined Lookups**).

Note

Although not actually part of the banding record, you may also attach a Note of up to 255 characters to a record by clicking the **Note** button on the top command bar. This note will be stored in a separate file that is linked to the original record by band number. For this reason, the same note will be linked to all captures of a particular bird. This note cannot be printed out with the rest of the banding record, although the notes can be exported or printed on their own (with band number). If you require a comment or note field that differs for every capture, or that can be printed with the record, you should create a user-defined field of an adequate size with a name such as “Comments” or “Additional Information.” However, such a field will be included with every record, even if it is blank, so you might want to limit its size to avoid using too much disk space.

4.3 – Replacement/Double Bands

There are three situations in which two band numbers would deliberately be associated with one bird. First, you may recapture a bird with a worn or damaged band, take off the old band, and replace it with a new band (**Replacement Band**). Second, if the old band is worn but still legible, or too difficult to remove, you may decide to leave the old band on the bird but add a new band on the other leg, so the bird can still be identified if the original band eventually falls off (**Additional Band**). Finally, you may band a bird on both legs, for example to study wear of bands made of different types of metals, or to study rates of band loss (**Double-banding**). Note that you require permission from the banding office before deliberately double-banding birds.

Occasionally, you might put a second band on a bird by accident. For example, you might put a new band on one leg before realizing the bird was already banded on the other leg. In this case, if you can

safely remove the second band, you should do so. Otherwise, if both bands are yours, and were put on the bird on the same day, you should enter the record as Double banded. If the first band was used on a different date, or by somebody else, then the first band should be entered as a normal banding (if it was not yet reported) and the second band should be entered as an **Additional Band**. In either case, you should add a **Remark** to the schedule for the second band to explain what happened.

Replacement Bands

If you replace a band on a bird, you should set the disposition code to 5, type the new band number in the **Band Number** field and the old band number in the **Alt-Band** field. If the old band is not fully legible (e.g., some of the numbers have worn off) you should put question marks (?) in place of the digits you cannot read. This band number will appear exactly as you typed it on the banding schedule, instead of the species code. (Note that the species code is still sent to the banding office on the disk file, even though it is not shown on the paper schedule). If the band number was not legible, you should also remember to tape the worn band onto the banding schedule, so that the banding office can try to etch the band and determine the original band number. If the band number was readable, and was one of your own bands, the original banding information will be displayed at the top of the screen by Band Manager if it is available. You can also view the complete capture history of the bird, with both its new and old band number, by clicking **History**. See **6.0 Recaptures** for more information.

Added Bands

If you add a new band to a bird, without removing the original, you should set the disposition code to 6, type the new band number in the **Band Number** field, and the old band number in the **Alt-Band** field. You should normally only leave the old band on the bird if all the digits are still readable. Otherwise, you should remove the original so that it can be returned to the banding office for etching. If the band number was readable, and was one of your own bands, the original banding information will be displayed at the top of the screen by Band Manager if it is available. You can also view the complete capture history of the bird, with both its new and old band number, by clicking **History**. See **6.0 Recaptures** for more information.

Double-banding birds

Normally, you should only put one official numbered band on each bird (on the same day), but occasionally, for a special research project (e.g., studying band wear), you may deliberately double band a bird by putting one band on each leg (please note that special permission is required from the banding office for deliberate double banding). In this case, you only need to enter one banding record for the lower band number, and the program will automatically generate the second record. To do this, you must enter all of the information for the LOWER numbered band, using the disposition code of D. You must type the full band number of the other band in the alternate band field. This band number **MUST** be in the inventory. If you need to add a band series to the inventory, you can click the **Bands** button, or delete the record, and go back out to the Inventory. When you complete the record and try to leave it (or click the **Check Mark** button, which triggers the record level validation), Band Manager will look for the second band in the inventory. If the second band is in the inventory, but has not yet been entered to a data file, Band Manager will offer to enter the second record for you (with a disposition code of 'S'). This record will appear on the schedule, but you cannot modify it directly, because its information remains the same as on the first record. Its information will be updated automatically if you modify the original record (disposition code 'D'). You cannot enter double banding records with batch entry, but you can use other data entry shortcuts such as Auto Append for the first band.

4.4 – Moving around your data file

There are several ways to move around your data file to view different records. However, if you are editing a new record, you must either complete the record or delete it before you can move to a new record, view the data in a Grid table, or leave the Data Entry module.

The simplest way to move from one record to the next is with the buttons on the bottom left of the data entry form. The two buttons that appear as dark triangles are for going to the top or start of the table (left pointing triangle), and the end or bottom of the table (right pointing triangle). The buttons just inside of these, which appear as '<' and '>', are for moving one record backwards (or up) and forwards (or down) in the table (the Page Up and Page Down keys have the same effect). Of course, if you are already at one end of the table, clicking on these buttons will have no effect and will result in a bell to alert you to that fact.

By default, when you open a data file, the records will be arranged in the order they were entered. In this case, the button labeled **Sorted** will appear disabled (gray color). To sort the file by band number, click this button. Band Manager will sort the file by band number, and the button will turn blue, indicating that the file is sorted. To return to the unsorted order, click the button again, and the color will return to gray.

You can also search for records with a particular value in a field. To do this, place your cursor on the relevant field, and then click **Find** (see **13.1 Searching** for details). This will find the next record matching your search. If you need to repeat the search, click **Again**.

You can also view many of your records at the same time, in a table form, by clicking **Grid**. Since there are more fields in the table than can be viewed at one time in a table grid, you need to scroll right to see some of the fields. The Grid view is great for comparing values in a few fields over several records at one time. Because many of the data checks built into Band Manager do not work in the grid format, you can not edit any data while in the grid format (although you may add or edit notes and custom remarks). However, if you find a record that requires changing, set your cursor on it, and then click **Done** to return to the regular single record format screen. You will be viewing the record where your cursor had been in the grid format. You can then make changes to this record and return to the grid format if you wish.

You can also limit the number of records that you see by applying a **Filter**, in the same way as for the band inventory. You can filter by species, date, bird status, sex, age, location and the records flag value (see **4.7 Data Integrity Checks**). Click **Filter** to open the Filter Designer. See **9.0 Filters** for assistance with setting filters. A filter can be cleared by clicking the **Clear** button.

4.5 – Data Entry Shortcuts

Data entry can be a very tedious task, but Band Manager has several features that should make it simpler. These include Flow Control, Auto Copy, Blank Copy, Auto Append and Batch Entry.

4.5.1 – Flow Control

During data entry some users prefer to have the program automatically advance them from one field to the next without having to use the Enter key. For instance, if you type an alpha code "SOSP", you may want the program to advance to the next field after typing "P" rather than having to press Enter. This can save a large number of keystrokes, but can also make it easier to get mixed up.

Flow works by advancing to the next field once the required number of characters have been entered to fill the field. Many of the fields always require the same number of characters (e.g., alpha code, species number, band number, band status, sex). Once the total number of characters is entered, the program moves on to the next field, provided the information was valid. If you entered invalid data (e.g., month > 12, invalid species code, etc.), you will still be stopped and held in that field until you correct it.

The age field is set up to flow in a special way if you are using alpha codes (AHY, HY, L). In this case, you could type up to three characters, but will sometimes type only two (HY, SY) or even one (U,L). However, since the first letter of all ages determines the number of characters required (e.g., the letter A is used in three digit ages only and the letter L is the only 1 character code), the program can determine when you have typed a valid code, and will then flow onwards.

For numeric fields such as month or day, the program will flow for 2-digit numbers (i.e. numbers 10 or larger), but not for 1-digit numbers (e.g., months < 10). In those cases, you must press Enter after you type the number. Similarly, for fields which can have many characters, such as Location or Colour, unless you have long code that fills the field, you will need to press Enter.

Flow works if you are proceeding through fields in a normal manner. If you use your mouse or arrow keys to go back to a field **that already contains data**, then flow will not work on that field since you may be editing a value that already fills the field.

Flow control is turned off by default when you install Band Manager, but can be turned on by clicking the **Flow** button on the data entry screen. It can be turned off at any time in the same way. If flow is enabled, the word “Flow” appears blue on the Flow button. If it is turned off, then the word will be gray.

4.5.2 – Next Band

If you are entering banding records as you band the birds, or with different band sizes mixed on the same data sheet (instead of having each band size sorted on its own data sheets), Band Manager can help you by remembering the last band of each size that you typed, and suggesting the next band number for a particular size. For instance, suppose you are entering data at your station with the bird in your hand. You need to input the band number, but would rather not type the whole number. To do this (after clicking **New** to get a blank record), **double-click** on the band number field, and a small menu of band sizes will come up. Choose the band size you want, and Band Manager will suggest what it thinks would be the next available band of that size on the string that you last used and ask you if it is correct. If this band number is the correct one, click **Yes** and the band number will be filled in. If it was not the correct band number (if you have changed strings, are not banding in sequence, or have not used any bands of that size yet), you need to click **No** and then type the whole band number yourself. You may also click **Bands** from the small window that opens when you double click on the band number field. You will then be shown the band inventory where you may select the band that you want to use, and click **Select Band**. That band will be placed in the band number field. Remember that all of your band numbers must have already been entered in the inventory before you can use them.

The first time that you use a band for each size, you must type the whole band number, since Band Manager needs to know the band series you are using before it can suggest the next band in sequence.

4.5.3 – Auto Copy and Blank Copy

Frequently, with banding data, much of the information remains the same from one record to the next. For example, the year, month, day or location may remain the same for many records in a row. Band Manager has two features to speed up data entry by filling in this information for you: Auto Copy and Blank Copy.

The Auto Copy feature automatically fills in data for all the selected fields (see below) as soon as you create a new record. Their values are copied from the last record that you were viewing when you clicked **New**. Usually, this is the record you just entered. This feature is very useful for fields that stay the same for many records, such as year, month, location code, disposition code, bird status code, and so on. It may also be useful for fields such as day, if you have banded a lot of birds each day. After filling in these fields, the program sets you to the first field on the new record that is not auto copied (often Band Number). Then, as you progress through the fields in a normal manner (using Flow or the Enter key after entering data in each field), Band Manager will automatically skip over the Auto Copy fields and proceed to the next field that is not set to Auto Copy. Sometimes, such as when banding ducks of a particular species, you may find that you have everything except the band number, age, and sex set to Auto Copy. If Append is set on (see **4.5.4 – Auto Append**), the Band Number will be incremented automatically, so you will only need to type the age and sex. If a value being Auto Copied does eventually change, you can simply go to that field using the mouse or arrow keys and type in the new value. That value will then be the one that is auto copied onto the next record. This can be especially useful when the day or month changes.

Blank Copy is similar to Auto Copy, in that it also allows you to copy values from the previous record, but in this case, the field is not copied until you press **Enter** in that field. For instance, if you are entering a new record, and get to the Species field, you can simply press Enter if the species is the same as in the previous record. The difference between Auto Copy and Blank Copy is that with Blank Copy, Band Manager stops on the field and only copies the information from the previous record if you type nothing in the field, and leave the blank field by pressing **Enter**. This is a useful feature for fields such as species or time, that change frequently, but may sometimes stay the same for several records. You can use Auto Copy and Blank Copy together by having fields that rarely change set to Auto Copy, and fields that change more often set to Blank Copy. The only fields you might not want set to Blank Copy would be those that are rarely or never the same (e.g., weight or wing chord), or those that frequently have blank values (e.g., if you created a user-defined Comments field). In the latter case, you might accidentally copy information from a previous record when you intended to leave the field blank.

The choice of which fields to set to Auto Copy and which to set to Blank Copy will depend upon the type of banding you are doing, the arrangement of your data sheets, and your own typing/data entry preferences. If you can touch-type, you probably want to develop a steady rhythm so that on most records, the same fields are being entered each time (using Blank Copy when appropriate). If you prefer to watch the screen and use a mouse, you may want to set most fields to Auto Copy, and use the mouse to select fields that you need to change. Experiment with these features to find the combination that suits you best.

To set up Auto Copy and Blank Copy, click the **Copy** button to open a form that lists all of your fields in the current data file (except Band Number which you cannot use for this feature). Beside the field names there are two columns, called Autocopy and Blankcopy. Set up the fields to be auto copied or blank copied by typing a T (for True) in the appropriate column for that field (double clicking in the

space will also change it to T). To turn off a field you don't want set, delete the T, type an F, or double click again. In all cases, the T should change to an F (for False). You can turn on both Auto Copy and Blank Copy for the same field, since you may want to use Blank Copy when you have Auto Copy turned off. Click the box labeled "Auto Copy Off" to turn Auto Copy on (the caption will change to "Auto Copy On"). When you have set up all of the fields, return to the Data Entry screen by clicking **Done**. For each data file, Band Manager will remember which fields you set to Auto or Blank Copy, so you do not need to reselect the fields each time you open a data file.

If Auto Copy is turned on, the **Copy** button will show the word "Copy" in blue. If Auto Copy is off, then the text will be gray. To prevent the program from auto copying when you do not want it to, open the Copy screen again by clicking **Copy**, and turn off Auto Copy by clicking the box labeled "Auto Copy On". By default, **Auto Copy is set to off every time you open a data file in the Data Entry and Editing form**. Blank Copy is always on for those fields that you set Blank Copy to T.

4.5.4 – Auto Append

For entering data for sequential band numbers, Band Manager provides another useful feature called Auto Append. When this feature is turned on (click the **Appnd** button, - the word "Appnd" will be shown in blue instead of gray indicating that Auto Append is now enabled), Band Manager waits until you press **Enter** on the **last** field in the form, and then automatically adds a new record with the band number incremented to the next band in the sequence (if that band is in the inventory and available). Band Manager will then skip the Band Number field and proceed to the next field in your table. If Auto Copy is turned on, Band Manager will also fill in the Auto Copy fields, and skip to the first field for which Auto Copy is not set. In this way, you can input data very quickly, entering data only for fields that change from record to record.

Band Manager will also create a new record with the band number automatically incremented if you click **New (Alt-N)** while Auto Append is turned on. This works the same as when you leave the last field, but can be useful if you are just beginning data entry for the day, or if you went back to an earlier field to fix a mistake.

If you are using the Auto Append feature and get a message that the next band is not available, you have likely reached the end of a series. You must turn off Append (click on the **Appnd** button again, so that it turns grey), click **New**, type the first band of the next band series, and then turn Append back on again. Auto Append will then restart for the next record. If you were not at the end of the series, then perhaps you used some bands out of order, you did not enter all of your bands into the inventory, or you entered a band number incorrectly on an earlier record. If you are unsure what happened, you can open the band inventory and search for the band number you were expecting. You can check whether it was there, if it was used and if so, which data file it is in.

4.5.5 – Batch Entry

The last time-saving feature discussed in this section of the manual is the Batch Entry feature. This feature is particularly useful for entering certain waterfowl data or data from gull and tern colony banding where measurements were not taken and all of the data for each record are the same except for band number. For example, say you had banded 243 young birds (using consecutive bands of the same size) at a Herring Gull colony. You were not weighing the birds nor attempting to sex them. You would enter the first band number (lowest number) and all of the information (location code, unknown sex, L

for age, bander's initials, etc.). When you have all of the data entered for that record, click **Batch**. You will be prompted to enter the suffix of the LAST band number in the series.

Enter the SUFFIX of the last band, and then click **Batch**. Band Manager will then proceed to add in all of the bands up to and including that last band number. When finished, it will tell you that it had successfully added 242 bands (the first one is not counted since you typed it yourself). Band Manager will still be showing the first band that you input. Click the forward button ('>') to step through the batch added records one by one (if so desired), or click the dark arrow button to go to the last record in the table. Be careful that you type the correct suffix. If you add too many records by mistake, you will need to delete them one at a time!

This feature can also be used to enter data for which most fields stay the same, but one or two fields change occasionally. For example, you might have banded a large number of young gulls, but also used a few of the bands on adults. In this case, you could use the **Batch** feature to add all of the bands as young using the batch feature. You can then search through the records for the band numbers that went on adults, and change their age or any other information. Depending on the number of changes, this method may or may not be faster than using Auto Copy and Auto Append to copy all fields but the one or two that change. Of course, you could also use separate strings of bands for each age/sex so that all of the records will be the same on a particular string of bands. This would only be worthwhile if you band many birds on the same day, as otherwise the date might also change.

4.6 – Printing Your Raw Data

Once you have entered all or most of your data, you should proofread your records. Although Band Manager can check for many mistakes, such as invalid species codes or measurements that are too large, it cannot tell if you accidentally typed M instead of F for sex, or if you typed the wrong species code (e.g., MAWA meaning Magnolia Warbler, instead of NAWA meaning Nashville Warbler). For proofing, most users will probably want to print their data and compare the printout to the original data sheets. You may also want a printout as a further backup of your data files.

Band Manager has a printout option on the Data Entry form, via the **Print** button. Click **Print** to open the **Print Setup** screen. You need to select the fields that you want to print, as well as the order that you want them to appear across the page. The Print Setup screen shows you a table of all the fields in your data file, in the order that you have them displayed on your Data Entry and Editing Screen. Select fields for printing by entering a number in the **Order** field of this table. The number that you provide will be its position across your printout. For example, you may set band number to 1, disp. to 2, alpha code to 3, or whatever. You may want to skip the species number (as it will ALWAYS match the alpha code), or other fields that may be the same in the whole file (perhaps year or location). You can enter the same number for two fields, but then Band Manager will sort them based on the order it stores them internally, which may or may not be what you want. You can clear all of the Order values back to zero by clicking **Clear**.

The order and selection of fields that you choose is saved when you are done, so that you do not have to re-create it the next time you want to print data from this file (though you can always modify it next time).

As you add fields to your printout, the value beside "Current Number of Characters" increases. This value represents the sum of the lengths of all fields that have been included, plus one space between

each field. Band Manager uses this value to determine the maximum font size (size of the letters) that you may print your report in. The font will always be Courier New, but the size can be 5, 6, 8 or 10 point (10 is the largest). You may also print your report in Portrait (normal page) or landscape (wide page) formats – Band Manager assumes that you are using 8.5” x 11” paper. If you choose landscape, then you can fit more characters across the page for each font size – but fewer rows on the page. The maximum number of characters that can be added to a printout is 235 (landscape format, 5 point font). You can choose any font size unless the number of characters you have selected is larger than the number allowed for that font size. Then Band Manager will automatically reduce the font size until the characters fit.

When you have selected your fields, click **Print**. You will then see the printout in a **Preview** window. To close the preview, click the Door Icon, or the X at the top right of the preview, or press escape. You will then be asked if you want to print the report.

Before printing your data, you should decide whether you want the records Sorted by band number or in the order they were entered, and whether you want to set a Filter so that only selected records are printed. See **4.4 Moving around your data file** for information on these options. If you are printing a large number of records, you might want to try printing just a few pages first, to make sure the font size and layout are what you want. You can do this by selecting which pages to print from the Windows print menu, or by Filtering for just a few records (e.g. a sequence of bands).

4.7 – Data Integrity Checks

One of the greatest strengths of Band Manager is the extensive data checking that it performs, to help you prevent mistakes in your data. Checks take place at three different levels: the field level, the record level, and among records. Field level checks are usually performed as you enter your data. Record level checks, and some among-record checks (e.g. checking recaptures against original banding) are usually performed when you finish a record, but can optionally be turned off and run afterwards in a “batch” mode. Some of the among-record checks are only done during schedule production, when the program checks for potential errors such as bands used out of date order, gaps in strings of used bands and so on. These last checks are described in **5.0 Producing Schedules**.

As you enter data into each field, Band Manager performs field level data checks. For instance, as you leave the band number field, it checks whether the band number you entered is in your inventory and whether it has been used before. When you type the species code, Band Manager verifies that the code is valid, and automatically fills in the other field and displays the species name. Most of the required fields are checked for valid codes, to ensure that the values are in their corresponding lookup tables (e.g., location and remark codes). For user-defined fields, you can also ask Band Manager to check those (see **8.2 User Defined Lookups**). These field level checks cannot be turned off.

The next level of checking is at the within-record level. These checks are normally done each time you attempt to leave a banding record (such as moving to another record or leaving the form) or when you click the Check Mark button to run the validation checks on the current record. Checks at this time include:

- ◆ a comparison of the age/sex of a bird with the species and date to determine if they are usually acceptable, based on Pyle
- ◆ checking that the band size used on the species is appropriate
- ◆ checking that your time of capture is before or equal to time of weight

- ◆ checking that the day is appropriate for the month (e.g., rejecting June 31)
- ◆ checking that you have a Remark when it is required
- ◆ checking the wing chord and weight against the species and sex (if you entered data for those fields *and* if you have enabled those checks)
- ◆ checking any user-defined lookups that involve comparisons with species and sex (if you created such checks).

You can control whether and when these record level checks are performed. To do this, click the **Verify** button. This will open the **Checking Options** form. The top option (Do General Within Record Checking) must be turned on (a check mark in the box) to allow any of the others to work. To turn this on or off, click in the small box. If this is turned off, none of the within-record checks will run. You may wish to turn this off if you have a student or volunteer entering data who is not familiar with banding or does not know what to do about errors (e.g. age/sex/month warnings). You can also turn on or off only some of the checks. For example, you can leave the general checks turned on, but turn off the Wing, Weight or User Defined Species/Sex checks separately. You can also choose your options for the type of recapture checking that occurs at the end of each record – but again, these will only run if General checking is turned on. See **6.0 Recaptures** for more information on recapture checking.

If you disable General Within Record Checking, then after returning to the data entry form, the Verify button will appear with gray text indicating that the checking is turned off. This means that records will not be checked as you enter them. Before you can produce schedules for these records, you must go back and check them all. To do this, open the data file you want to check, if it is not open already, and click **Check**. You will be asked if you want to check all of the records. Click **Yes** to conduct the check. If you like, you can filter your data before doing the check so that only those records in the filter will be checked. Once the check is complete, you will be shown a summary of the number of errors and warnings.

Errors are problems that must be fixed before you can print schedules. Warnings will not prevent schedule production, but they may indicate that data were mistyped, or that you may be using inappropriate age/sex criteria, so you should still check them. In some cases (e.g., if you are using a novel ageing/sexing method) you might want to add a Remark to a record to explain this.

You can view errors, warnings or both. When you are finished viewing the warnings and/or errors, click **Clear** to reset the filter to all records (if you are viewing errors only, your filter will be reset automatically once you resolve all of the errors).

Each of your banding records has a hidden data “flag”. This flag tells Band Manager whether the record has been checked, and whether it had any warnings or errors. If verify is on when you enter or edit a record, and the record passes all data checks when you are done, then the flag is set to OK. If you had any warnings, the flag indicates that a warning was issued, and for what field. If there are any errors, the flag is set to an error, and you will not be able to leave the record. If validation is turned off, all records that you add or edit will be set to Unchecked. This field is checked during schedule production (see **Section 5.0**) to determine if records are ready to be scheduled. Unchecked records or records with errors cannot be scheduled.

4.8 – Customizing your data entry screen

There are a couple of ways in which you can arrange your data entry screen to be more convenient to you. Most of the flexibility is in the table designer where you determine which fields will be included in the table and their order. If there are required fields that you never use (e.g., the Colour field, if you do not do any colour-banding, or banders initials if you do not keep track of which person banded a particular bird) you can suppress those fields so that they are not visible (although they will still be in your file). See **7.0 Creating Tables** for details on these options.

Within the Data Entry module, you can also move the fields around on the screen. For example, you might want to move the date fields so they are all on the same line, or spread out some of the fields. To do this, you need to open the data entry screen, hold down the **Ctrl** and **Alt** keys at the same time, and then click on the field you want to move. You should get a message “Click again to complete the move.” Move your cursor to the where you want the field, click again, and the field will move there. You can continue to move the fields until you are satisfied with the arrangement. Be warned, however, that this will not change the **Order** of the fields. For example, suppose you defined your table with Year after Species and before Month. Even if you move Year to the bottom of the screen, during normal data entry your cursor will still go from species to year to month in that order. If you want to change the order of the fields, you should **Modify** your table using the **Table Designer** under **Utilities** (see **7.0 Creating Tables**). You can safely do this even if you have already entered some data, provided you do not change the size or format of any fields.

4.9 – Miscellaneous features

Delete

The **Delete** button will delete the current banding record, and mark the band number as available again (if it was not a recapture record).

Export

The **Export** button on the data entry form will allow you to export your data (under the current filter) to a variety of different file formats. See **11.0 Exporting Data** for details.

Null Values

Sometimes, if you are recording numeric information for each bird, you may be missing information for some birds. If you leave the field blank, this will be considered the same thing as zero by Band Manager. In some cases, it is obvious that zero is not a valid value (e.g., wing chord), but for other measurements (e.g., the difference in length between two primaries), zero could be a valid value. Even for wing chord, some computer programs may not realize that zero is invalid, and would include a zero in the average (this will happen with the Measurement report in Band Manager). If you are missing information for a particular bird, you should instead enter what is called a ‘null value.’ A value of NULL is not the same as zero or blank, and will be automatically ignored in calculations.

In Band Manager, NULL values are only allowed in numeric fields (in a character field, blank is not the same as zero, unlike a numeric field). The pre-defined fields of wing chord and weight will allow null values, as will any user-defined numeric fields. To assign null to a field during data entry, press and hold the **Alt** key, and press the letter **K**. This key combination (**Alt-K**) will mark the field with .NULL. (which you will see AFTER leaving the field. If you leave a numeric field blank, without marking it

with .NULL., the field will be interpreted as, and replaced with zero. On export to different formats (spreadsheet, data base etc) the fields that are marked .NULL. will either show as blank, or as .NULL., depending on the export format. However, numeric fields not marked as .NULL., but left blank, will show as 0.

Global Change/Replace

You can change many records at once on your data file, for example, to replace all the instances of one Location Code with a new code (e.g., if somebody entered the wrong location code for a large number of records). This is a very powerful, but dangerous feature (for example, if you changed all the M to F in the sex field, you may not be able to undo this change, because Band Manager can not tell which records were originally M and which were originally F). You can invoke this by clicking **Global** from the data entry screen. For details, see **13.3 Global Change**.

5.0 – Producing Schedules

Once all of your data have been typed (or imported) and checked, you will want to produce schedules for submission to the banding office/lab. If you turned verification off (the General Within Record checking) during any part of your data entry (or imported any data and have not yet done a check), then you should return to your file and **Check** of all your data to ensure that you have no data integrity errors (see **4.7 Data Integrity Checks**). Band Manager will look for any unchecked records or errors during schedule production, and if it finds any, schedule production will be cancelled.

To produce schedules, click the **Schedules** button in the **Reports** menu.

New Schedules or Redoing Schedules

The first screen to appear will ask if you want to produce schedules for **Unscheduled** records, or if you want to **Reschedule** data that was done previously. The **Reschedule** option allows you to re-schedule records that were previously scheduled. You may need to do this if your schedules were lost in the mail, or if you lost or damaged the electronic file before it was submitted. You may also need to reschedule records if the banding office finds a problem with your data, and asks you correct the problem and resubmit the schedules. If you choose this option, you will be asked to enter the date when the schedules were first produced. The reschedule option works by re-doing the schedules that were produced on a specific date. If you do not remember the date, you should cancel schedule production (click the **Cancel** button), return to the main menu (click **Done**), and open the **Inventory**. Search for one of the band numbers that you want to schedule, and check the date when it was scheduled. Remember this date, and then return to **Schedules** and continue. If there is no schedule date in the inventory, then the records may not have been scheduled with Band Manager. In this case, you should choose the **Unscheduled** option. After providing the date, the rest of the process is the same for previously **Scheduled** and **Unscheduled** data.

Selecting the Data File(s)

You will then be shown the **Pick File(s)** form. Here you tell Band Manager which files to extract data from. If you have multiple data files (such as for different banding locations), you may need to add more than one. If you want Band Manager to simply add all data files required to do all bands that need to be scheduled, click the **All Files** button. Otherwise, click the **Add File** button to select a file for inclusion. Repeat this process to select all of the files that you want to include. As you proceed, the form will tell you how many files have been added, and how many records those files will include. Click **Drop File** if you want to remove a particular file (along with all of its records) from the list (you may have accidentally included the wrong file).

Filtering the records

You may also want to filter the records to be included for scheduling. To do this, click **Filter**. You will be shown a Filter Designer where you can add criteria for selecting records for scheduling from the files that you have included. The available fields are specific to **Schedule** production. You can Filter by band number (to select only certain sequences), Band Size, banding date, or by User Notes (e.g., to schedule only records that were assigned to a particular subpermittee). In the latter case, you should make sure that you do not have used bands in the same string of 50 that were split between subpermittees (you will be warned about this later). See **9.0 Filters** for more information. You may design your filter before or after adding files for scheduling. If you do so afterward, then Band Manager will “reselect” the records and provide a new summary of selected records.

When you have included all of the files that you need, and added a filter (if desired), click **Done** to continue with schedule production. After clicking **Done**, Band Manager will retrieve the band records that you have chosen, and conduct a variety of data integrity checks. You will only see the results of these checks if there are problems. Band Manager will check for the following potential problems:

Missing Records

The first check, is whether you have left out any records that have not been scheduled. Band Manager checks the inventory for band numbers that have been used, have not been scheduled, and are not included in the list for schedule production. If it finds any, you will get a warning. You may have done this on purpose, as you may only want to schedule some of your records (e.g., you intentionally left out some data files, or used a filter to exclude some records). However, the warning is provided to ensure that this was your intention. You may view a listing of all band numbers that were missed by clicking **View**. If you want to add any more files, click **Add Files** and you will be returned to the previous screen. Click **Continue** to ignore this message and proceed with the records that you have included.

Double-banding Records

Next, Band Manager checks for any deliberate double-banding records (disp. code **D** and **S**). If you did any double banding, it will check that both records of all double banding pairs have been included for scheduling. Both of the bands in a double banding must be scheduled at the same time. If you have any problems with double banding records, you will receive a message and schedule production will cease.

Data Warnings, Errors or Unchecked Records

The next check is a summary of any data warnings, errors or unchecked records. During data entry, your records were checked against several different lookup tables. If you left verification on, then you should not have any Fatal Errors (records marked as Errors during the integrity checks), and all records that need a remark will have one (since Band Manager does not allow you to leave a record until you have a required remark and have corrected any errors, unless you turn off verification). If you did turn off verification, and did not later check all records before starting schedule production, then you will have records that are marked Unchecked. If you ran a check on all the records, but did not fix the mistakes, you may also have records marked as Fatal Errors. If you have any Unchecked records, Fatal Errors or Warnings, you will be shown a summary of the number of each type, as well as a list of the individual records.

You can filter the records in this table to view only certain warnings or errors by clicking on the categories (in red) at the top of the screen. For instance, click on the label **Age/Sex Warning** and the table will show only those records (if there are any). When you do this, another label will appear, that says **Reset Filter to all**, which you can click to view the contents of the entire table again. From this warning screen you can view a summary of the problem records and print them. You can choose whether to print just errors, just warnings or both.

If you have any Fatal Errors or Unchecked Records you will not be allowed to continue. You must **Cancel** schedule production and return to the **Data Entry** screen to fix these records. If you are unsure which file your records are in, you can find them using the Inventory (Data File option).

If you checked your records already, this screen should only show records with warnings (as you should have used verification). Records with warnings are often quite acceptable since you may have used a

band size that was outside of the normal size range for the species, or used an age/sex/month combination that is outside of the standard range for that species and accepted the warning that Band Manager gave you during data entry. They are shown to give you a last chance to review them before schedule production. If you have warnings only (and want to accept them), click **Continue** and schedule production will continue. If you want to re-check any warnings, click **Cancel**.

Missing Remark or Location Codes

Next, Band Manager will check for any remark codes that were used in the data but are not in the Remarks lookup table. Since Band Manager prints the actual remark on the schedules (not the code), the remark code must be in the remarks lookup table for schedule production to continue. If this situation arises, Band Manager will cancel schedule production after telling you which remark code(s) is/are missing. A check for any missing location codes will also be done in the same manner. Locations are also printed on schedules, and therefore all location codes used in data files must also be found in the locations lookup table (Since Band Manager will not allow you to input a location or remark code that is not in the lookup table, the only way this situation could arise is if you deleted the code from the lookup table **after** including it in a banding record - **use caution when deleting codes from lookup tables**).

Date Sequence Check

Because most banders use bands in sequential order, the next check is to see if the dates of banding in each series are in order. This can be a useful check for mistyped dates. If you have any dates out of sequence (that do not already have a relevant Remark), Band Manager lists all the 50-band series for which the dates are out of sequence (a higher numbered band was used before the previous lower numbered band) and asks if that is OK. If you accept the warning, then a remark will be placed on the schedule for the first out-of-sequence record in each series, and schedule production will continue. If you are unsure whether the dates are correct, you should cancel schedule production and check your records. If you find they are OK, you can avoid this particular message by adding a remark that refers to date sequence (a remark or custom remark containing the word “date” or the ‘DO’ code provided in the Remarks table) to the **first** record that is out of sequence in the series.

Missing Bands Check

Band Manager will next build all of the bands that you have included for schedule production into band series. Band series are sequences of up to 50 bands with the same prefix, and consecutive suffixes with the last two numbers between 01 and 50, or 51 and 00 (100). Each of these sequences would appear on one paper schedule.

Band Manager will do a check of any incomplete sequences (less than 50 bands) to determine if you missed any bands that may need scheduling. If there were any that potentially should have been scheduled, you will be shown a summary of Incomplete Band Series. For example, if you are planning to schedule band numbers 23-50 in a particular series, and you have already submitted a schedule for 01-22, this will be considered OK. However, if you have not yet scheduled the earlier bands, or if you had only scheduled 01-21, you will be shown a warning. Whenever possible, you should try to schedule all of the bands in a series at the same time, because this makes the filing easier at the banding office. However, you should still submit all of your banding records at the end of each year, even if some of the series were not complete. See your Banding Manual for further details.

The summary shows you each series that you have included which may have some bands missing **at the beginning**. The count in each column indicates the number of bands BEFORE THE BEGINNING OF THE SERIES (i.e. before the lowest number) that are missing. It includes those that are used and unused, those that are not in your inventory, those that have already been scheduled and the total. It also indicates whether there is a gap in a series that you are planning to schedule. For example, if you have included bands numbered 01-19 and 21-50, the sequence 21-50 will be listed, with Gap set to T (true), and 1 band listed as missing.

In some cases, these may be OK (e.g., if you have not yet used the earlier bands, or if you scheduled them before you started using Band Manager). However, in other cases, you may have missed entering some banding data, or forgotten to include some of the relevant records or files. In particular, lost or destroyed band records may have been missed, or you may have lost or missed entering a data sheet. All Band Destroyed, Band Lost, or Record Lost data records should be typed and included before schedule production. You may need to check this summary very carefully to ensure everything is OK. Beware that this summary will not detect if you are missing bands at the END of a sequence (e.g., band number 50 or 00 is missing), because Band Manager assumes that you have merely not finished the sequence yet. You can check for these yourself at the next step, by looking for sequences that do not end in 50 or 00.

Schedule Production

After you have passed all the data checking (you may get some or none of the warning windows), Band Manager will open up the **Summary of Bands for Schedule Production**. This form shows all of the band series that are set to be scheduled (in 50 band series since that is what fits on a paper schedule).

The first thing that you need to do is decide if you want to produce both paper and electronic schedules. Since you cannot submit schedules without an electronic output file, you **MUST** leave **Create Electronic Schedules** turned on if you are creating your final schedules for submission to the banding office. However, if you only want to print the schedules (e.g., if you wanted to proof them), then you would turn this option off. Alternatively, you may not want to print the schedules. This could be the case if you are reporting to the Canadian office where you **DO NOT** need to submit paper schedules (the electronic file is the only required format), or if you already printed all schedules for proofing, did not make any changes, and you are now making the electronic file. Both of these are set **On** to start with, but you can turn them off by clicking on the relevant box.

Next, you have the option to produce only completed schedules (i.e., series for which the last two digits end in 50 or 00). To do this, click the **Completed Schedules Only?** box. This is useful when you want to produce schedules for newly completed band series (which you are supposed to do whenever you finish a series), but do not want to schedule other used bands yet (you would wait until you complete those series, or the end of the field season). If you are producing all schedules, you should scan the list of sequences to see if any might be missing their last records (especially if a series ends in 49 or 99), because these would not have been detected in the previous Missing Bands check.

You then need to decide how you want to go about producing the schedules. You can click **Do all - no confirm** to have Band Manager go ahead and produce all of the schedules for all series shown **WITHOUT** showing them to you on the screen. In this case you will be asked to confirm only your printer selection. If you are confident that all of your data are correct, then you may want to choose this option.

The next option that you have is **Do all - confirm action for each**. This option will step through the list of series for scheduling, showing the schedules to you on the screen before prompting you to confirm if you want to print and/or create the electronic schedule for each (based on your selection of the print/electronic options). In this case, you can check each schedule before printing it or sending it to disk. Band Manager will proceed through all of the series unless you click **Cancel**. When the schedule is shown to you on the screen (called a preview), you close the preview by clicking the **Close Preview** button (picture of the door), or the X in the top right corner of the print preview form, or by pressing **Escape**.

The final option is the **Do current - confirm action** option. This will show you the schedule for the series that your cursor is on. After closing the preview, you will be asked to confirm what to do with the schedule. In this way, you can pick only selected series for scheduling.

If you produce the electronic schedule for a series, then the bands for that series will be marked in the band inventory as having been scheduled on the current date. If you only print the schedules, or do nothing, then those bands ARE NOT MARKED AS SCHEDULED. In this case (possibly deliberate if you were only printing for proofing), you will be need to go through the entire sequence of schedule production for those bands again to create the electronic schedule file for the banding office.

Saving your Disk Schedules

When you exit the form, (by clicking **Done**), you will be prompted for the name of the file for the disk schedule (if you had **Create Electronic Schedule** selected for any of the series that you scheduled). You have to enter a file name if you produced any electronic schedules. Give the file a meaningful file name such as your name and year, permit number etc (max 8 characters and with letters or numbers only). Band Manager will prompt you to save this file in the bandmgr\export directory. Accept this destination. After saving the file to that directory, Band Manager will ask you if you **ALSO** want the file copied to diskette for mailing to the banding office. If you click **Yes**, then you will be prompted for the drive to copy the file to (A or B). Click the appropriate drive, and then click **Continue** and the file will be saved to diskette (ensure you have a disk in the drive). We want you to save a copy to the bandmgr\export directory so that you have a backup copy of the schedule file in case the diskette gets damaged or lost in the mail. If you did not choose to copy the file to diskette when asked by Band Manager, then you can simply copy it to a floppy later using Windows Explorer or File Manager. Canadian banders may also E-mail the file to the banding office. You will find the file in a subdirectory called "export" within the c:\bandmgr directory. See the on-line help under **Backing Up with another program** for more information on using Windows Explorer.

Note for File

After you have entered the file name for electronic schedules, you will be shown the Note-for-File. The Note For File is a summary of all the bands you have just scheduled. It provides for a summary of the number of bands scheduled, the number of new birds banded, the number of replaced and added to bands, destroyed or lost bands etc. It then provides a summary of the number of individuals of each species of bird that was banded and a summary of the locations that banding took place at. Canadian Banders are used to seeing this summary, but U.S. Banders may also find it a useful summary. After you have viewed it on-screen, you will have the option to print it out.

Redoing Schedules

If your electronic or paper schedules become lost or destroyed after you produce them, you may need to re-create them. You can do this either by redoing all bands scheduled on a certain date (see above), or by going to the band inventory, and re-setting the scheduled date using the **Reset** option on the band inventory screen. See **3.2 Helpful Features** under **3.0 Band Inventory** for more information. **Do not re-submit schedules that you have already sent to the banding office unless asked to do so.**

6.0 – Recapture Data

Band Manager accepts recapture data as well as original banding data. In this manual, we use the term Recapture to include all captures or encounters of a bird after its original banding (i.e., including returns, repeats, recoveries, controls, etc.). The disposition codes used for recaptures are F or R. A disposition of **F** refers to a Foreign Recapture of a banded bird that was not banded under your permit. This means that the band number is not in your band inventory and that you were not issued that band. A disposition of **R** indicates a Recapture of a bird that you banded. The band number on that bird may or may not be in your inventory depending on whether you have entered all of your historical data. No distinction is made whether the bird was recaptured in the same location as the original banding (this can be determined from the location code), nor are dead birds differentiated (this can be coded with the **Condition** code). For most purposes, Band Manager treats F and R in the same way. The distinction is mainly for your own benefit, so you can keep track of your Foreign Recaptures.

Reporting Recaptures

At this point in time, live recaptures of your own birds, in the same 10-minute block where they were banded, are not usually submitted to the banding offices and are entered strictly for your own use. In the future, the banding laboratory may request these records. If so, then a new version of Band Manager will be released at that time to provide a utility for submitting these records.

However, you generally should report all Foreign Recaptures to the banding offices, as well as any recaptures of your own birds that moved to a new 10-minute block. Birds that die on recapture or are found dead should also be reported, although if they die near the banding location, in the same season they were banded and before the schedule was submitted, the banding offices currently prefer that the original banding record be changed to Band Destroyed, and the recovery not be reported (although you can retain the information in your own files – see **Condition** under **4.2 Entering individual fields**). Check the Banding Manual for further guidelines on which recaptures to report. At this time, there are no facilities for automatic electronic submission of these records, so you should either use the toll-free number for reporting band recoveries, or send a letter, paper recovery form or E-mail with all of the relevant details. If you have a large number of foreign recaptures to report, you should first check with the relevant banding office.

Entering Recaptures

In Band Manager, recaptures are entered in essentially the same way as original bandings. If you normally enter the band number before disposition, then simply enter the band number of the recapture. Band Manager will check whether that band is in the inventory or not and if it is, whether you have already used it or not. If the band is not in your inventory, Band Manager will ask you if you typed the band number incorrectly, if it is a Foreign Recovery or a Recapture. The band number might not be in your inventory if it is a recapture of one of your own birds from before you began using Band Manager. If you choose Foreign Recovery, the disposition code will automatically be marked as F, while if you choose Recapture, the disposition will be marked R. You can then enter the remainder of the fields the same as for an original banding. If the band is in the inventory but already marked as used, then you will be asked if the band was typed incorrectly or if it is a Recapture. If the band was in the inventory, but not yet marked as used, Band Manager will assume you are entering the original banding information. If you are entering recapture data first (which is not recommended, because the data checking is less thorough), you can simply change the disposition code to R.

If you enter disposition first, simply type the appropriate code (F or R) and then enter the band number. If the disposition is appropriate, then you will not get the message about incorrect band number. However, if you enter a disposition other than F or R, and then enter a band that was previously used, you will be asked whether it was a recapture or a mistake, and the disposition will be updated according to your response.

If the original banding record is available in any of your data files, then summary information from the original banding will appear automatically at the top of the screen (Species/Age/Sex/Date). If the information is not available (e.g., a Foreign recapture) then a message to this effect will be displayed.

Recapture records are subject to the same checks as original banding data. In addition, when you finish a recapture record and attempt to leave it (to move to another record, close the program, etc.), then an among-record check will be conducted. The extent of that checking depends on the level of recapture checking you have turned on. By default, Band Manager checks each recapture only against the original banding record. You may change this setting to check among all recaptures for that band, or you may turn it off. To change this, click on **Verify** from the Data Entry screen and choose the appropriate setting. Be sure that General Within Record Checking is On, or all recapture checks will also be suppressed.

For the Check Recap against Original Only option, Band Manager will compare between the recapture record and the original record (if it is available) for inconsistencies of date, age, sex, species and condition. If you have any inconsistencies, then you will be shown a complete history for that band, and informed of the inconsistency. You have the choice of ignoring the message and returning to what you were doing, or trying to fix the mistake. You also have the option of going to any of the records in the history to change the data on that record (see **History**, below).

If you have full recapture checking turned on (Among All Recaptures option), then Band Manager will check among all of the records for inconsistencies of age, sex, species, date and condition. This check will check each capture record against every other. This is useful for finding an inconsistency that occurs only between two recapture records, and not between any one recapture record and the original banding record (for example, if the original was sex U, one recapture was sex M, and one was sex F). However, if you do not want to try to fix the mistakes, it can be annoying to be reminded of them every time. If you would like to try to fix inconsistencies, check the section **Fixing Inconsistencies** below.

History

When you enter a recapture record, Band Manager makes a record of the recapture in a Recapture Inventory. This inventory allows Band Manager to quickly recall all captures of a particular band, and display them for you. When you are viewing an original banding record of a bird that has been recaptured, or a recapture record, the History button in the top right of the data entry screen becomes enabled (text will be in red instead of gray). Clicking this button will show you all of the records for that bird (including records with a different band numbers if the band was ever replaced, added to, etc.). You will also see the History button (and original data) for replacement or additional band captures, because technically these are also recaptures. In this case (recaptures entered before the original bandings or for replaced and added to records) the history button may become enabled despite the fact that clicking the button would only produce one record because Band Manager thinks that there should be other records. Clicking History in this case would simply result in a message indicating that there is only one record available.

When you are viewing the History form, you can jump from the record that you are currently on, to any of the records shown in the history (provided that you have finished entering all the data for the current record). Simply place your cursor on the record you want to see, and click **Go To**. You will be prompted to confirm the action, and then Band Manager will close the History form, and move to the selected record. In some cases, this record may be in a different data file. If so, you will be asked if you want to close the current data file, open the necessary one, and view the desired record. Click **Yes** to do so.

When you have used **Go To** to move to a new record, you will see a new button, the **Back** button. This button will be visible **ONLY** while you are on the record that you chose to go to. You may click **Back** to return to the record that you were previously on. If you change records without using **Back** then the button will disappear again. **REMEMBER** that if you had to change data files to Go To a different record, that you have in fact closed the data file that you started in. If you wish to enter new data in the file that you started in, you will need to close this data file and re-open the file you started in (or have clicked **Back** from the record you went to).

Fixing Inconsistencies - Advanced Users

If you find that a recapture is not consistent with the original banding or other captures of the same bird, you may want to try to fix the inconsistency. Band Manager does not require that you fix these inconsistencies (since recaptures are not currently reported to the banding office), but if you plan to analyze the data yourself, you may want to resolve them in some way.

In some cases, when you check your data against the field sheets, you may find that the band number, species, sex, age, or date were mistyped on one of the records, and you merely need to fix the typo. In other cases, you might find that the field records were correctly typed, and you need to infer where the mistake happened. If your recapture differs in several ways (e.g., species, sex, and measurements) from your original banding, but another bird, with a very similar band number has identical features, you may suspect the band number was misread at recapture. Another possibility is that the original band numbers were mixed up (e.g., band 47 was put on a Rose-breasted Grosbeak, and band 48 on a Gray Catbird, but they were recorded the other way around). Or you may suspect that one of the banders misidentified the bird or made a mistake on the sex or age. Unless the bird is still in the hand (e.g., you were entering data during banding), or the bird has been caught many times and only one capture was inconsistent, you may need to guess the correct information, perhaps based on your judgement of the bander's experience, or the how-aged or how-sexed codes combined with the time of year (for example, many birds are more reliably sexed in the breeding season than at other times).

If you plan to correct the records, based on your best guess, you may want to keep track of what the original data was at the time of capture. This has several advantages. First, if you are analyzing your data, you can estimate the error rate (the number of times that the sex or age is incorrectly recorded for a particular species). Second, if you capture the bird again, you can re-assess your guess. For example, if a bird was called Female the first time, and a Male the second time, you might guess it was probably a Male and change both records to Male. Suppose the bird is later recaptured again, and called a Female. Unless you kept track of the field information, you might think it was called Male twice, and conclude the final capture was wrong, when in fact the field data may suggest the opposite conclusion.

There are several ways to keep track of the original information. The easiest is to use the Note feature provided in the Data Entry and Editing form (See Note in **Section 4.2**). If you need to change the

species, age or sex on a record, add a Note indicating the change, why you needed to make the change, and what the data was before the change. In this way you can review this note in the future if new recaptures force you to re-evaluate the record again.

You could also add a single user-defined Comment or Information field where you would indicate such changes. This method would make it easier to export or print the information along with the rest of the banding record, but would result in the field appearing on ALL of your banding records (would appear on your data entry screen) whether you have any information in the field or not.

Both of these methods will work well if you do not plan to analyze your data for error rates. If you wish to be able to do that, then you may want to create a separate user defined field for each of: original age, sex and species. For example, banders participating in MAPS may be using MAPSPROG, which has separate fields for the “original” species, sex, age, how-aged, and how-sexed values (i.e. what was recorded in the field). These fields are updated automatically if the user changes any of the fields after recapture checking. This feature is not presently included in Band Manager, but if you like, you can create similar user-defined fields and update them yourself.

7.0 – Creating Tables

One of the strengths of Band Manager is that rather than providing a rigid structure for your data, it allows you to create an unlimited number of data tables customized to suit your needs. You can arrange the fields in any order you like (e.g., to match your field data sheets), and add extra fields that are not required by the banding offices (e.g., net number, tail length, molt patterns, etc). Band Manager predefines a number of optional fields, and also allows you to add up to 19 additional data fields. You may have as many data files as you wish, each of which may have a different structure. For instance, you may want to have a separate table for each year and/or season, or a separate table for each type of banding that you do (ducks, passerines, hawks). This is especially useful if you record different information for each group of birds. For optimum performance of Band Manager, we strongly recommend that you separate your data into more than one file (e.g., one per year or season) if you band more than a few thousand birds per year. Once a file exceeds 10,000 records, you will notice some decrease in performance. How you group your data will depend on how many birds you band. Some stations band 20,000 birds per year. Individual banders may band only a few hundred per year. Split your data into different files based on the number of birds you band, and the way you would like to organize your data. You can also split or merge data files, by transferring data from one file into another, but this is less flexible if the tables differ in structure (see **13.4 User Table Management**).

Creating a Table

To create a new table, click the **Table Designer** button from the **Utilities** Menu. You will then be shown an option form where you can select **Design** to create a new table, **Copy** to copy the structure of a table you have already created (i.e., to make a NEW table with the same structure as the one you are copying), or **Modify** to modify the structure of a table you have already created. If you have already created a table and want to add or remove a field, or change the order of the fields, click the **Modify** button. If you have already created a table for one season, and wish to simply copy it for the next season, then click **Copy**. Otherwise, click **Design**.

If you are creating a new table, you will be prompted for a name to call your file (up to 8 characters with only letters or numbers—the three character extension will automatically be .dbf). By default, these will be stored in the directory ‘userfile’ within your Band Manager directory. DO NOT save the table to a different directory, or Band Manager may not be able to find your files. Once you type a name and press **Enter**, the Table Designer form will open. The Table Designer displays the basic table of all required fields (i.e., those fields required to produce banding schedules), as well as a few commonly used optional fields (such as time, how aged, how sexed, wing chord, and weight). You can drop or add fields, rearrange their order, suppress fields, and print the structure. When you are finished creating (editing) your table structure click **Done** and you will be returned to the Utilities Menu.

Dropping and Adding Fields

In the Table Designer, you can remove a field (if it is not required) by setting the cursor on the field and then clicking **Drop Field**. You will be asked to confirm the action, and then the field will be deleted. If a field cannot be dropped, then the **Drop Field** button will not be available (it will be gray instead of blue) when your cursor is on that field. You can add a new field by clicking **Add Field**. This option brings up another form where you will enter the name of your field, its type (**Character**, **Date**, or **Number**), and its total length. If you chose **Number**, the total length must be long enough to include the maximum number of digits, plus the decimal point, plus one for each decimal place that you want (e.g., 999.9 would need a size of 5). You must also choose the number of decimal places after the decimal (1

in this case). Click **Done** and your field will be added to the form. Notice that in the Field Name column, your new field will have the name User1 (2, 3, etc.). This is the internal name of your field that Band Manager uses, while the name you chose (shown under Caption), is the name that will be used on data forms, reports, etc. You may change the caption name for any field listed in the structure, however, PLEASE NOTE that changing the caption name WILL NOT change what Band Manager expects you to enter into that field. Change the caption names to better reflect what you call a field on your data sheets. For example, do not change the caption “Location” to “fat” as Band Manager will still expect location codes in that field. However, do change “Location” to “Station” if you tend to refer to your banding locations as Stations.

Changing the Order of Fields

The order that your fields appear on data forms depends on the order they appear in this table, so you should arrange the order to suit your needs at this time (data entry is usually easiest if the field order matches your data sheets). To move a field up or down in the order, place your cursor on the field to be moved, and click either the up or down arrow found on the left of the table. Your field will move accordingly. You can move any of the fields in this way.

Changing the Type of a Field

If you want to change the type of an existing field, click the **Change Type** button. You will be shown a form where you will enter the new data type for the field, and its size (as with adding a field above). Only fields that you created yourself (user-defined fields) can be changed. If your cursor is on a field that cannot be modified, then the **Change Type** button will be disabled (gray instead of blue).

Suppressing a Field

You may not need to use some of the required fields that appear in this table. Although you cannot remove them (because they are required by Band Manager), you can hide or suppress them so they do not appear on your data forms. For example, you may not want to use the **Colour Marker** field if you are not colour-banding. To hide this field, set your cursor on that field, and then click **Suppress**. A ‘T’ will appear in the Suppress? column indicating that that field is not to appear on the Data Entry and Editing form. Please note that you **cannot suppress the last field in the table**. However, if you want to suppress a field that is currently last, simply move it to a different position, because you will not be seeing it anyway. If the last field in your table is suppressed, Band Manager will give you an error and force you to move the last field before letting you out of the Table Designer. This is because the Auto Append feature of the data entry form will not function properly if the last field is suppressed.

You may want to use the suppress feature for fields that you use on a seasonal basis. For example, you would not likely use a Skull field during spring banding. Therefore, you may want to suppress that field in the spring, and un-suppress when you begin fall data entry. You could then suppress it again once you have stopped skulling birds in the late fall or early winter. DO NOT remove the field, as you would lose any data stored in that field from the previous fall (if you have data in that field). You can return to the Table Designer (modify option) at any time to change the Suppress status of a field, add new fields or change the order of your fields.

Printing the Table Structure

You may make a printout of this table structure by clicking **Print**. You will be prompted to confirm the printer selection, and then the structure will be printed. This is useful if you intend to do a dBase import to this table, and need to know the exact names and order of the fields (see **Section 10.2**).

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Copy and Modify

If you chose the **Copy** option, you will not be shown the Table Designer, but will instead be prompted for the name of the file to copy, and a name for the new file. After providing that information, the new file will be created with the exact same structure as the original. If you chose **Modify**, you will be prompted for the name of the file you wish to modify. If this file already contains data, you will be warned that you could lose data if you change the type or size of any existing fields. However, you can safely rearrange their order, or suppress fields that you have not been using.

8.0 – Lookup Tables

Lookup tables are lists of acceptable values for a particular field in your data tables. For example, the **Birds** lookup table has a list of all acceptable alpha codes and species numbers. These tables help to reduce errors in your data files by ensuring that only valid entries are made to each field. Lookup tables can also make data entry easier by allowing you to “look up” a value in the table when you cannot remember an exact code. For example, if you could not remember the alpha code for Barn Swallow, you could use the lookup option and search the common name field for “swallow”. You would then be able to choose the appropriate species from the list, and the appropriate code would be filled in for you. In the case of species, the look-up tables also allow Band Manager to display the common or scientific name of the species on your data entry screen.

Band Manager uses two types of lookup tables. The first are **Program Lookups**. These tables are provided with Band Manager and include tables that come pre-defined (e.g., the species table, band size table, etc.) as well as some tables that users can modify (e.g., locations table, banders table, wing and weight, etc.). The other type of lookup tables are **User Defined** lookup tables. These tables are created by the user for use on user defined fields. If you created a user-defined field in your table, then you can create a lookup table for it.

8.1 – Program Lookups

Click **Utilities**, and then **Program Lookups** from the Main Menu to open the **Lookup Tables Maintenance Menu**. This screen will allow you to view and/or modify the various lookup tables that *are provided with* Band Manager. Most of these tables can also be viewed from the data entry screens by double-clicking on the corresponding field. Some of these tables are read-only (you cannot change them), but you can browse through them to look for information such as the appropriate band size for a specific species, available band sizes, or the region code for your area. These Read-only tables are the Birds, Band Size and Regions tables. The other tables (Banders, Locations, Remarks, Wing, and Weight) are lookup tables that you either build yourself, or can modify if you wish.

8.1.1 – Banders

The Banders table allows you to provide a list of the initials and names of all the banders who are banding under your permit. You are not required to enter these, but doing so can be helpful for future reference. At the least, you should enter any banders who hold a sub-permit under your permit. Doing this will ensure that those banders names are included on schedules.

Click **Banders** to open the Banders Names and Initials screen. The first time that you enter this screen, the table should be empty. To add a new name, click **Append**. A new line will be added, and you will be able to enter the banders name and initials. A third column has been included for those banders with a sub-permit to input the sub-permit number (enter all 5 digits of the permit number, plus the letter). Add all of the banders and click **Done** to return to the lookups menu. You can add additional banders, if necessary, during data entry by double-clicking on the **Initials** field to open this table.

8.1.2 – Locations

The Locations table is a list of all the locations where you have been banding. During data entry you can only enter location codes that are in the lookup table. This ensures that the codes you input relate to the appropriate geographical data for the schedules. They also simplify data entry by eliminating the need to input the full latitude, longitude, and location description for every record (on the data record,

you only enter the location code and Band Manager will fill in the corresponding geographical information on the schedules for you).

To open this table, click **Locations**. The locations table can contain two types of records. At present, the banding offices want records submitted with the latitude/longitude (lat/long) specified to the nearest 10-minute block, and with only one location name for each 10-minute block. However, in the future, they plan to accept locations specific to the nearest minute. Also, you may want to record your own locations more precisely (e.g., you may have several locations within a 10-minute block). Band Manager has been designed to accommodate both of these needs. The location table allows you to specify as many locations as you like, as precisely as you like, but at present these are automatically grouped into 10-minute blocks for schedules. You can assign latitude and longitude for your locations as precise as the nearest 1/100th of a second (for GPS users).

This flexibility is accomplished by using two types of location records. The first is called a MASTER (not related to the master permit holder) location record. This code has the description you want to use to designate all of your locations from an entire 10-minute block. You can provide the lat/long as precise as you wish, but Band Manager will truncate them to the 10-minute block on schedules. You will have one master record for each 10-minute block that you band in. The second type of record is called a “sub-location” which is used if you want to designate more than one location within a 10-minute block.

For example, you may have a Master record called “MYBLOCK” which has the latitude and longitude of the 10-minute block where you do all of your banding, and the description that you want to appear on the schedule. Within that block, you may have three banding locations, perhaps called BLIND, HOME and SMITH’S. If you want to keep track of which birds you band at each location, you can create location records for each of those sub-locations. To do this, simply create a record called MYBLOCK with **Master?** set to true, and then create three additional sub-location records called BLIND, HOME and SMITH’S, with **Master?** set to false, and the **Master Name** set to MYBLOCK. Band Manager will check to make sure that the lat-long for all of these records are actually in the same 10-minute block. You can use any one of these 4 names in your banding data (the master record or any of the sub-location records), but the geographical information associated with MYBLOCK is what will appear on the schedules for all of them since it is the master block record. You do not have to use the master code for any of your records if you have sub-locations. You do not NEED to create “sub-locations” if you only have one banding location within a particular 10-minute block, or if you don’t want to keep track of separate locations within a 10-minute block. In this case, you could simply use MYBLOCK on all of your records.

When you open the location table, you will notice it has two “pages”; a List page, and a Detail page. Pages are selected by clicking on the Page Tab (tab with **List** or **Detail** on it). The list page will show the name and code for each location, whether it is a master block location, or, if it is not a master record, the name of the master location. The detail page has fields for the latitude and longitude (with separate fields for degrees, minutes and seconds), the province or state, the region code and the direction code.

To set up your table, click **Append**. The form will switch to the detail page, a new line in the table will be created, and your cursor placed in the Code field. You can enter a code up to 8 characters long, consisting of any combination of letters, numbers, or special characters. Letters will be automatically

converted to uppercase (capitals). Hit **Enter** when you are done. If this is a Master record (you would normally enter a Master record for a 10-minute block before you enter any sub-locations), press the “T” key to designate the Master column as true. Since this is the master record, **leave the Master Name field blank**. Then, you need to fill in the latitude, longitude, province or state, region and direction. There are table lookups for the Region field and the Province/State field. If you are not sure of the proper code, **Double click** on the field, and the table will be displayed for you to choose the appropriate code from (for more on lookups see **4.0 Data Entry**). You do not have to fill in the seconds value for latitude and longitude, but you need to fill in the degrees and minutes. If the location is only recorded to the nearest 10-minutes, you still need to enter two digits for the minutes (i.e. add a zero at the end). This is so that Band Manager can tell whether a ‘3’ means 30 minutes, or 03 minutes. You may enter a precise lat/long even for a master location (including seconds) as Band Manager will truncate the value on schedules. Finally, move over to the Description field. Enter the full description that you would like to appear on the schedule for this location (e.g., 5 km north of Wiarton, ON). If you used a GPS to determine the exact lat and long, please add the words “By GPS” to the location description.

Once you have entered a master record, you can input sub-locations, if you wish to use them (if not, you can continue to enter new master locations). Click **Append** again and a new line will be created where you can input the first sub-location code. To make this a sub-location, skip the **Master?** field (or type **F** in it) since this is NOT a master block record. Proceed to the Master Name field and type in the appropriate name (in this example, you would type MYBLOCK). You can then proceed to complete all of the geographical data for that location including latitude, longitude, province/state code, region, direction code and description. In this case, you may want to fill in a more detailed lat/long designating the exact site of the sub-location. Band Manager will allow the lat/long to be input precise to 1/100th of a second (generally lat/long’s this specific are determined by GPS). You can also enter a more personalized description of the location, because this will NOT appear on the schedule. Continue to add in the other sub-location codes for that block and then any other master block records (and their sub-locations) where you band. There is no limit to the number of locations that you can add to this table (master or sub-locations). You can open this table during data entry and add new records at that time if necessary.

When you are finished, click done. At this time, Band Manager will do a check to ensure that there is no more than one Master Record per 10 minute block, that every sub-location code has a matching Master location, and that the lat/long of each sub-location conforms to its Master record (same 10 minute block). It will also check to ensure you have entered a valid Region code, and if you are banding in the US or Canada, it will check that the province/state code you entered corresponds to the region code.

If your data are complete and error free, you will be returned to the lookups menu. If you get any error messages, then you can either **FIX** the problem (you will be given details of the problem) or **DELETE** the record that is causing the error. For example, if you have two Master Records in the same 10-minute block, you can either fix the lat/long on one of them, if it was typed incorrectly; change one of these records to a sub-location (with the other as a master); or delete one of the records. Similarly, if you have a sub-location that is not in the same 10-minute block as its Master, you might need to correct the lat/long, change the Master for this record (creating a new one if necessary) or change the record into a Master.

To delete a location, click the **Delete** button at the top of the form while the cursor is on the record to be deleted. You will be asked to confirm the delete before Band Manager actually removes the record. **Be warned that if you delete a record for a location code you have already used in your banding records, you will not be able to schedule those records until you replace the record or change the location code on the banding record.**

You are responsible for ensuring that the lat/long that you give for your banding location is correct. You can obtain this information using a GPS, or you can find it on most standard topographic maps. If you are unsure of how to read this information from a map, contact your banding office for help.

8.1.3 – Remarks

The Remarks table is used to match your 2-character Remark codes to the message that will be printed on the schedule. Click **Remarks** to open this table. When you first install Band Manager, you will see two remarks already listed in the table. One is a pair of asterisks (**) and the other is the code 'DO'. These two remark codes are reserved and cannot be changed. Asterisks represent a custom remark (see **4.0 Data Entry**) while 'DO' is the code that you can use to indicate that dates out of sequence are correct (this can be added automatically during schedule generation as well). The rest of the codes need to be created by you. The Remark code can be one or two characters long, and can be letters, numbers or a combination of both. In this case, letters are NOT automatically converted to uppercase, and a lowercase code will not be the same as an uppercase code (for example, 'OK' is not the same as 'Ok' or 'ok'). Click **Append** to add a new remark code, and fill in the two-character code and the description. If you entered one that you do not need, you can delete it by clicking the **Delete** button on the top command bar. The small box to the left of the remark will turn black, indicating that the remark will be removed when you close the form (if you mark the reserved codes for deletion, they will not be removed).

8.1.4 – Wing and Weight

The Wing and Weight tables are lookup tables that indicate the normal minimum and maximum values of wing chord and weight respectively, for both males and females of each bird species. These are used to warn you if your wing and weight measurements are outside of the normal range.

These tables, which are supplied with Band Manager, provide average values for most species for which measurement data were available at the time the program was produced. The wing chord is given in millimeters (mm) and refers to the un-flattened wing chord, as is recommended for measuring birds in the Bird Banding Manual. Weight (mass) is given in grams. Because many species of birds vary in size across North America, **some of these ranges may not be suitable for your area**. Also, you may prefer to measure wing slightly differently for some species (for example, many shorebird banders measure the flattened, straightened wing). Also, if you are entering data "live" (as you band the birds), you may prefer to have more conservative limits, that only include 95% of the birds of a given species. In this way, you will have a chance to double-check any extra large or extra small birds. For all of these reasons, and because the measurements are not submitted to the banding office, **you are allowed to modify the values in these tables if you wish**.

Click **Wing** or **Weight** from the **Program Lookups** to open one of these tables. Unlike some of the other look-up tables, you cannot view these tables by double-clicking on the Wing or Weight field in the Data Entry form (although double clicking the field will result in a message indicating the normal range for the current species and sex). These two tables look very similar to each another, and consist of

a table of the Species Number, Alpha Code, and the min and max values for male and female. You may edit these tables so that the values more closely match the birds in your geographic area, or use the values that are provided. If the values are the same for both sexes, you should still enter the values in both sets of columns. You are responsible for ensuring the accuracy of the data that you edit.

If Wing and Weight checks are enabled and you have the wing and/or weight fields included in your data table, then Band Manager will check your wing chord and weight values during data entry. This check occurs at the end of each record. Band Manager checks the table using the appropriate species and sex and determines if your wing and/or weight values are within the range provided in the lookup table. If your bird is of unknown sex, then Band Manager will check against the highest and lowest values of both male and female. If your wing or weight field are blank (zero) or .NULL. then the value will not be checked. Similarly, if the values in the lookup table are zero, they will not be checked.

If your value is checked and outside the normal range, you will be warned that your value is higher or lower than the normal range, and asked if you want to change it. If not, you will be allowed to continue. This check is considered a warning, and does not cause any errors or prevent you from leaving the record; it is simply to alert you of the discrepancy. You should check these discrepancies carefully, because sometimes they may indicate that the sex or even the species was recorded incorrectly.

Wing and Weight checking may be turned off if you do not want the checks to be done. To turn them on or off, you can either change the settings through the **Checks** screen (click **Checks** from the **Utilities** menu), or from the **Verify** button in the Data Entry screen. Even if these checks are turned on, they will only be run during data entry if you have General Within Record Checking set on.

8.2 – User Defined Lookups

Many users will add extra fields to their data files. These user-defined fields (for example, Fat, Net, Skull, Trap Type, Primary Molt, etc.) are not included in the default table setup, but can be added – see **7.0 Creating Tables**. Once these fields have been added, you may want Band Manager to do some checking on their values. For example, you may create a 2 character field for Trap Type and want to restrict values in that field to GT, HT, JT or MN (for Ground Trap, Heligoland Trap, Jay Trap and Mist Net respectively). User defined lookups will allow you to create this type of lookup, as well as several other types.

To create lookups for user defined fields, click the **User Defined Lookups** option in the **Utilities** menu. You will then be asked to choose the file for which you want to add the lookups. Choose one and click **Open**. You will be shown the **Table Lookup and Field Format Option** screen. This form will show you all of your user-defined fields, as well as fields such as How Aged and How Sexed (which are included as default fields but have no standard pre-defined codes). You may create a lookup for any of these fields. There are three types of lookups plus an optional Character Formatting option within the User Defined Lookups. Which ones you should use depend on the type of field you are creating the lookup for, and whether it is character or numeric. For character data, there are two types of lookups: a Value Lookup, which lists acceptable values for the whole field (e.g., for Trap Type values could be MN, GT, HT, JT, etc.), and a Character Level Check. Numeric fields may also have a value lookup, which is similar to character data, except that the allowable values will be numeric. Numeric fields can not have Character Level Checks. Instead, they can have either a Single Range lookup, or a Species/Sex - Max/Min lookup, which provides a separate allowable range for each sex of each species (useful for measurements).

Another option for data checking is to add some formatting to a character type field (C in Field type column). Character fields can be forced to allow only letters (default is to allow letters, numbers or other characters), to capitalize all letters entered, or both. In the format field, enter a '!' to capitalize all letters, and enter the letter 'A' if you want only letters in the field. If you want BOTH, enter both symbols (!A). Do this BEFORE creating and editing a lookup table for that field so that as you enter the data into the lookup table, it will also be formatted in the same manner.

To add a lookup for a field, set your cursor on the field for which you want the lookup and click **Add Lookup**. You will then be given a choice of the type of lookup you want.

8.2.1 – Value Lookups

Value lookups are allowed for both numeric and character fields. If you select a **Value** lookup after clicking **Add Lookup**, a lookup table will be created and Band Manager will give you a message "Lookup table created". You will now notice a "V" in the Lookup Type column for that field. If you had created a lookup in another banding data file for a field with the same name, you will be told that a lookup table already exists and asked if you want to use it (for example, if you have a Trap field in all of your tables, simply make sure the field has exactly the same name (caption) in every table, and you can then use the same lookup for every file). If the field actually has a different meaning from the other table, and you want a separate lookup, then you will need to rename the field (change the caption) before proceeding.

You now need to input the values to the lookup table. Select the field with the Value lookup, and click **Edit Lookup**. You will be shown the Lookup Table Editing Form. If the table is blank, you need to click **Append** to add the first value. Do this and enter the first valid code (e.g., MN). If the field is numeric, you may only enter numeric codes. At this point you may simply press **Enter** (or down arrow) to add another valid code. Each valid code goes on its own line. Add all of the valid codes that you want to allow in that field. **PLEASE NOTE** - if you want to be able to leave the field BLANK (e.g., if a blank field is a valid value), then add a blank line to this table (append another record, but enter nothing). **IF YOU DO NOT APPEND A BLANK RECORD (OR ZERO FOR A NUMERIC FIELD), THEN YOU WILL BE REQUIRED TO ENTER A VALUE IN THAT FIELD.**

8.2.2 – Character Level Checks

The Character Level Check is only available for character fields. It is useful for fields such as how sexed, how aged or a molt code. For instance, the default how-sexed field allows you to have up to 2 different single character codes for how sexed (e.g., C for cloacal protuberance, B for brood patch, T for tail length, W for wing length etc). You may enter one or two of these codes in the field. If you used a Value Lookup for this field, you would have to list all possible combinations in either order. However, the Character Level Check allows you to check EACH CHARACTER that is entered into the field. Thus you only need type the list of allowable characters. Then as you enter data to that field, each character is checked to be sure that it is valid. A space will automatically be considered a valid value, allowing you to leave the field blank.

If you choose a **Character check lookup**, then after you click **Done**, you will be shown another form for entering the valid characters for that field. Enter all valid characters (with no spaces or any other punctuation between them) into the line. In the preceding example you would type CPTW. If you

include any punctuation, then that *symbol will be considered a valid value*. When you are finished click **Done** and you will see a "C" in the Lookup Type column.

The How Aged and How Sexed fields actually have a “pre-loaded” Character lookup provided with them. They are a list of suggested How Aged and How Sexed codes that you may want to use. See the on-line help under **How Aged Field** and **How Sexed Field** for a complete list of the codes and their meanings. If you do not wish to use the pre-loaded list of codes, you can change the Character level check values for these fields, or drop the lookup all together. You ARE NOT required to use these codes.

8.2.3 – Single Range Lookup

The Single Range lookup is available only for numeric values, and allows you to provide a single maximum and minimum value for the field. Any number entered to that field would either have to be zero, OR fall between the max and min values that you set. For example, you might restrict a time field to values between 0500 and 1400 if you only band between 5 am and 2 pm, or a net number field to have a value between 1 and 15, if you only had 15 nets.

If you choose a Range Check lookup you will receive a message telling you the table has been created, and will see **R** in the **Lookup Type** field (unless there was already a field with the same name and a lookup in another table). You should then place your cursor on this **R** and click **Edit Lookup**. You will see a form to enter a single min and max value for that field. NOTE: The program will automatically allow a zero value in this field even if your min value is higher than 0. This allows you to establish a max and min value for the field, but still allow 0 to imply a missing value.

8.2.4 – Species/Sex – Max/Min Lookup

The Species/Sex – Max/Min lookup is the most complex lookup table, and is available only for Numeric fields. It allows you to specify a minimum and maximum value for male and female for all possible species of birds. This is similar to the wing chord or weight lookup tables that are provided with the program (see the previous section), except that you have to provide all of the data. This can be useful for checking other measurements, such as tail length or tarsus.

If you selected a Species/Sex – Max/Min lookup, then you will receive a message telling you the table has been created, and will see **S** in the **Lookup Type** field (unless there was already a field with same name and a lookup in another table – see above). To edit this, place your cursor on the **S** and click **Edit Lookup**. You will see a table with all valid bird species codes and species numbers along with columns for the min and max values for male and female. Values in this table will all be zero. You can then go through and add min and max values for both sexes for species that you want checked. The table is sorted by species number, but you can search for species by **Alpha Code** using the **Find** feature. Once this table is created, then when you enter a value to the corresponding field during data entry, the program will check that it is within the given range. If it is not, you will get a warning. The check will not be done if you leave a zero in the field, or if you have not supplied min and max values for that species. This check is done when you leave a record (as with the Wing and Weight checks), rather than when you enter the value to the field (since you need to have sex and species in the table for it to work). This type of check can be turned on or off via the **Utilities/Checks** menu or via the **Verify** button on the Data Entry and Editing form.

8.2.5 – Copying a Lookup to other files

If you have a similar field in other tables, you may want to copy the lookup to another table (this is easier than setting it up in each of the other tables). You may copy a lookup from this table to another table, if the caption names match, if the field types are the same, and if the field in the other table does not already have a lookup.

To copy a lookup to another table, set your cursor on the field that you want to copy the lookup for. Then, click **Copy Lookup** (this button is only enabled if the current field has a lookup). You will be asked to confirm, and then you will be shown an open file window where you can select the user file to copy the check to. Select one and click **Open**. Band Manager will open that file, search for a field with the same caption name, and add the lookup (this is done in background). You will then receive a message indicating whether the copy was successful (**Field is Updated**) or whether it failed (**The field is not in that table, or is of a different type**). Click OK, and you will again be shown the open file window to copy the lookup to another file. Repeat this until you have added the lookup to all of the tables that you want, and then click **Cancel**, or hit escape when the open file window comes up.

If you create a new table in the **Table Designer** using Copy to copy the structure of an existing table, any user-defined lookups that are already defined will also be copied as part of the structure. If you make any changes to a user-defined lookup in one table (except Character checks), they will automatically be reflected in all the tables.

If you create a new table in the future, that has a field with the same caption and field type as one with a lookup in an existing data file, then you will not have to recreate the lookup for that field - simply add the lookup to the table. The lookup table that is used will be the same one as was created for the original data file.

8.2.6 – Dropping a User Defined Lookup

If you no longer want a lookup for a user-defined field, then you may remove it. To do this go to the Table Lookup and Field Format Option form (**Utilities/User Defined Lookups**). From here, select the field that you want to remove the lookup for, and then click **Drop Lookup**.

At this point, you will be asked to confirm. If the lookup was a character check, the lookup will be removed. If it is another type of lookup, you will be asked if you want to simply **disassociate** the lookup table from this user file. This is done in case you use the same lookup table for several user files. Click **Yes** to **disassociate** the lookup from this user table, or **No** to delete the lookup table and remove it as a lookup from all tables.

8.2.7 – Using User Defined Lookups

On fields with **Character Level Checks**, each character is checked as you type it. If it is invalid, a bell will sound and you will get a message listing the valid characters. Click **OK** to clear the message and the character will be erased. Blanks can be left along with any of the valid characters that you added to the check. **Double click** on the field to see the valid characters for that field.

Fields with a **Value** lookup (character or number) are checked as soon as you leave the field, to see if the value you entered is in the list of acceptable values. If not, you will get a message indicating that the code is invalid, and you WILL NOT be allowed out of that field until you correct it. You may however, **Double click** on the field (as with required field lookups) and see the list of valid options (or even add

to the list at this time). If a blank (or zero) is not included in the list of options, then the field will **REQUIRE** that you enter a value before leaving the field. If you wanted to allow a blank or zero, **double click** on the field, and modify the lookup to append a blank line to the lookup table.

Fields with a **Range** lookup will also be checked as you leave the field. If you leave the field with a zero, then the check will not be done. However, if you enter a number greater than 0, then the check will be done and you will not be allowed to leave the field if the value that you enter is outside of your range. **Double click** on the field to see the allowable numeric range for that field.

You may have noticed that the time fields already have a max and min value assigned to them (0 to 2400), but they also allow a user-defined look-up to be added. You might do this if you want a different range for these fields. Once you have created a lookup for a time field, the automatic checks will be inactivated. You could include a range that is larger than 2400 (some people may choose to have 12:30 at night (early morning) be written as 2430, and thus assign their own range lookup to allow this. Others may want to narrow the allowable time gap (e.g., 500-1200) because they do not band during the night, afternoon, etc. Or you could change the range to 000-240 if you only enter a 3-digit time (rounding to the nearest 10 minutes and dropping the final zero).

Fields with a Species/Sex - Max/Min check are not checked until you actually leave the record (as with the age/sex/month checks). At that time, if the value that you entered is not within the range, then you will be given a warning. You may, however, ignore it and continue. This check will not be done if the value in the field is zero. You can turn these checks On or Off. To do this, click **Utilities** and **Checks** from the Main Menu, or click **Verify** from the Data Entry and Editing Form, and check or uncheck the **Do User Defined Species/Sex Checks** option. This check will only be run if **General Within Record Checking** is On. None of the other user-defined checks can be turned off.

9.0 – Filters

Sometimes, you may wish to view, print, or report on specific records in a data file. For example, you may want to see only the birds of a particular species, or birds banded by a particular person, or birds banded over a particular range of dates. To do this, you can use a **Filter**, which filters the original records so that you only see the ones you want (the remaining records are, of course, still in the file).

Data filters can be used in a variety of forms in Band Manager, and they all work in a similar manner. There are actually three “Filter Designers” each used in different circumstances. There is a Filter Designer for the Data Entry and Editing form (also used for most Reports), which is different than the one for the Band Inventory. There is also a separate Filter Designer for schedules. All of these work the same way, but they differ in the fields that are available for filtering on.

A **Filter** may be used for limiting the records in a display, report, export, etc. For instance, in the band inventory you may only want to view the bands that have been used. In this case you would open the Filter Designer, and choose “Used” under “Used Status”. When you return to the band inventory, only bands that have been used would be displayed. You could use a more complex filter in the band inventory by combining many of the options together. For instance, you may filter for bands that have been used, of a given type, a given size, and had been scheduled on a particular date. When you finish designing the filter and click **Done**, the band inventory displays only those bands that meet ALL of the criteria. If none of the records match the filter criteria, then you are informed that the filter found no matching records, and the filter is reset (to no filter).

If a filter has been set in the Data Entry and Editing module, then the text in the **Filter** button will be red. If a filter has not been set, the text will be blue.

To clear a filter and return to viewing all records, simply click **Clear** and the filter will be removed. Once you have set a filter, you may go back into the filter designer and modify your filter criteria. If you have not clicked **Clear**, then your earlier filter criteria will still be filled in. Within the filter designer, you can also click **Clear** to reset the filter and clear all of the text boxes in the Filter Designer

In the Filter Designer, if you enter data in one of the data boxes, you will notice that Band Manager automatically checks the box beside that data indicating that it is to be included in the filter. If you change your mind and do not want to use that field, you only need to uncheck that box - you do not need to remove the data.

Fields that normally have a double-click lookup feature in the Data Entry and Editing form, will also have that capability in the Filter Designer. For instance, you may **double-click** on the Alpha Code field in the Filter Designer to open the Alpha Code lookup table. You can then select the Alpha Code that you want, and have it automatically filled in on the Filter Designer.

See on-line help for a more complete explanation on creating a filter, along with some actual examples.

10.0 – Importing Data

Before using Band Manager, many banders may have entered their data into other computer programs. Some will have used other banding programs such as DBentry or Band-Ops, while others may simply have entered the data into a spreadsheet, data base or text file. Those data **WILL NOT** have to be re-entered into Band Manager by hand. Instead, Band Manager has an import facility to allow you to import and use previously entered data. Band Manager can import data directly from Band-Ops and MAPSPROG files, delimited ASCII files, standard data format (sdf) files and dBASE files. Note that DBentry uses standard data format (sdf) files. The import facility is also used to incorporate Band Manager data entered on another computer into the copy on your computer.

In all cases except an import of Band Manager data, you need to create a new Band Manager data file (possibly by copying the structure of an existing one) to receive the imported data.

When importing data, the bands can either already be in the band inventory, or you can allow Band Manager to add them for you. However, if any of the band numbers in the import file are already in the band inventory **AND MARKED USED**, then records using those band numbers (excluding recaptures) will be ignored during the import.

An import works by first importing the data to a temporary holding file. This file is checked and edited for accuracy and completeness. If the data pass all of the integrity checks, then they are appended to the destination table, and the band inventory is updated accordingly.

To import a file, open the Band Manager Import screen by clicking **Utilities** and **Import** from the Main Menu. The first step is to choose the data **TYPE** that you want to import from. Choose one of the six options. The Band Manager import is different from the others, see **10.7 Importing Band Manager Data** for details. If you choose one of the first five import types, then a **Source File** button will appear. Click this button and find the source file that you want to import (you may have to navigate to the appropriate directory where you import source file is stored). **Double click** on the file name, or select the file and click **Open**. Once you have done this, the **Destination File** button will appear. Click this button, and you will be asked if you have created a data file to receive the data. Click **Yes** to open the Select File dialog to choose an existing file. If you click **No** then Band Manager will allow you to Design or Copy a new file (see **7.0 Creating Tables** for instructions). You may also Cancel.

After you have entered the Source and Destination files, you may want to limit the records that are to be imported to those after a certain date. This is particularly important if you are importing MAPSPROG data because your file will contain your banding records for all years, and you may have previously imported some of the earlier records. If you wish to limit the import to capture records after a certain date, click **Yes** in the option box and a date box will appear where you can enter the date.

Now you can click the **Import File** button to begin the actual import. Each type of import works a little differently, and the following paragraphs describe the next few steps for each of the import types. **Sections 10.1 to 10.5** deal with these specifics. In **Section 10.6** the instructions again refer to all data types other than a Band Manager import.

10.1 – Importing Band-Ops Data

If you choose a Band-Ops import, then you will only be allowed to use a source file by the name of "bands.dbf". After clicking **Import the File**, the import will begin immediately, without any special screens.

10.2 – Importing dBase Data

If you are importing a dBASE file, the extension must be '.dbf'. Any fields you wish to import must have the same name as in Band Manager and should be the same type and size as the corresponding field in Band Manager. If the field types and sizes do not match, your data may be corrupted upon import. However, if you do not have values for some of these fields, it is not necessary to include them.

The following are the field names, types and lengths present in all Band Manager files:

Field Name	Type	Length	Decimals	Comment
BANDNUMB	Char	10	0	
BANDSTAT	Char	1	0	= Disposition Code
SPCD	Char	4	0	refers to Alpha Species Code
AOU	Char	4	0	refers to Species #
YR	Num	4	0	
MO	Num	2	0	
DAY	Num	2	0	
SEX	Char	1	0	0/4/5 if you use these codes
ALPHASEX	Char	1	0	U/M/F if you use these codes
HOWSEX	Char	2	0	
AGE	Char	1	0	0/1/2 etc. if you use these
ALPHAAGE	Char	3	0	AHY/L/HY etc. if you use these
HOWAGE	Char	2	0	
BIRDSTAT	Num	3	0	
LOCATION	Char	8	0	
FOOTNOTE	Char	2	0	= Remark code
OLDBAND	Char	10	0	
COLOUR	Char	12	0	
WINGCRD	Num	6	1	
WT	Num	6	1	
TIMECAP	Num	4	0	
TIMEWT	Num	4	0	
INITIALS	Char	3	0	

If you have any other fields you wish to Import, they should be named:

USER1

USER2, etc.

and you must create corresponding fields in your Band Manager table with the identical size and format to the dBASE file. To help ensure that the names, sizes, and types all match, you may print out a copy of the table structure from the Table Designer, while you are creating or modifying the destination table. Then you will have a list of the exact field names, sizes and types you need to have in your

dBASE file. If you cannot modify your dBASE file to match the Band Manager requirements, you may prefer to export the file from dBase to a Delimited or SDF format, and use one of those Import options.

10.3 – Importing a Delimited File

If you are importing a delimited file, then once you have clicked the **Import the File** button, a second screen will appear that is used to obtain information on the structure of your source text file. You will be asked if you want to load the import parameters from a saved file. If this is the first time you have imported a delimited file, no saved parameters will exist, and you should answer **No** to that question. If you have done a delimited import previously, then you may have saved a parameters file. If the parameters are similar to the file you are importing now, you should answer **Yes**. You will then be asked to select which file contains the saved parameters that you want to use. Once you have selected a file, all the parameter information will be inserted into this form and you may simply click **Done** to continue and proceed with the rest of the import. Or you can modify the parameters if necessary. If you do not have saved parameters, then on this form, you must:

1. Set the number of fields to be imported, and indicate if the band number is in two separate fields (i.e., prefix and suffix) or in one field (the default).
2. Indicate what character is used as the field separator. If your field separator is a comma (,), a pipe (|), or a space (), you may click on any of those. If your field separator is any other character (bear in mind that the "Tab" character is unacceptable due to the limitations of Visual FoxPro), you must click **Other** and then fill in the appropriate character in the text box that appears.
3. Indicate what character (if any) is used as a delimiter around character fields (if present, this is normally a double quote (")), but it is not necessary)
4. Set the order of the fields being imported from the source file to establish the order of the incoming fields. A list of all fields in the receiving Band Manager file is listed in a box on the left-hand side of the form with the addition of "Field ignored". You may select a field by **double clicking** on it or by a **single-click** on the field and then a click on the greater than sign >. This will transfer the name of the field to the box on the right-hand side of the form under the label "Order of fields to be imported". Do this in the order that your fields appear in your import file. If a field exists in the import file that you do not wish to import, select "Field ignored" as a placeholder for that field. If you have made major errors in the order of the incoming fields, you can click the **Reset field order** button to clear the box on the right hand side and start over. If you have placed a field into the right-hand box out of order, you can single click on that field in the right-hand box and click on the less than sign "<" to remove it and place it back in the left-hand box at the end of the list of fields.

The number of the field that is being considered in the source file is indicated in the box under the "What variable is in field number" label.

If you are importing weight and/or wing chord, you need to indicate whether your import data contain explicit decimal points when needed (the default). If your data are measured to the nearest 10th, but do not include decimal points (for example, a weight of 10.3g is entered as 103), change this default and the values in these fields will be divided by 10. This is useful for people who always recorded wing or weight to the nearest 10th, and didn't type the decimal to save keystrokes. Do NOT change the default if

you measured wing length to the nearest millimeter or weight to the nearest gram (or these will be divided by 10).

Click **Done** when the order of fields being imported has been properly completed.

After a few other screens (discussed below in **Section 10.6**), you will be asked if you want to save the parameters in a file. If you answer **Yes**, you can save the parameters in a file which will be given the extension ".dim". This file can then be used during future imports to retrieve all the information you have just provided for this import, saving you from having to go through this process again (assuming that the next file to be imported has the same structure).

10.4 – Importing SDF Data

If you are importing a SDF file (fixed length text file), then after you click **Import the File**, a second screen will appear that is used to obtain required information about the structure of your import file. If you have previously done a SDF import, then you may have saved a parameters file. At this point, you will be asked if you want to load a parameters file. If you are importing your first SDF file, then no saved parameter file will exist and you should answer **No** to that question. If you answer **Yes**, you can select which file contains the saved parameters you want to use. Once you have selected a file, all the parameter information will be inserted into this form and the age, sex and band status forms and you can continue simply by clicking **Done** on each screen as it appears, unless you want to make changes.

If you did not use a saved parameter file, then on this second form, you must:

1. Set the number of fields to be imported.

2. Indicate the starting and ending position of each field to be imported.

To establish the location of the incoming fields in each line of data, a list of all fields in the receiving file is listed in a box on the left-hand side of the form. Select a field by single-clicking on the field. Then you must enter the starting position in the text box under "First character position" and enter the ending position in the text box under "last character position" and then click on the greater than sign ">". This will transfer the name of the field and the starting and ending position to the box on the right-hand side of the form under the label "Fields to be imported". If you have made major errors in the field data you have provided, you can click the **Reset field order** button to clear the box on the right-hand side and start over. If you have placed a field into the right-hand box that shouldn't be there, you can single click on that field in the right-hand box and click the less than sign "<" to remove it and place it back in the left-hand box at the end of the list of fields. Unlike a delimited import, the order of the fields in the right hand box does not matter. The number of the field that is being considered in the source file is indicated in the box under the "What variable is in field number" label.

If you are importing weight and/or wing chord, you need to indicate whether your import data contain explicit decimal points when needed (the default). If your data are measured to the nearest 10th, but do not include decimal points (for example, a weight of 10.3g is entered as 103), change this default and the values in these fields will be divided by 10. This is useful for people who always recorded wing or weight to the nearest 10th, and didn't type the decimal to save keystrokes. Do NOT change the default if you measured wing length to the nearest millimeter or weight to the nearest gram (or these will be divided by 10).

Click **Done** when you have entered all of the starting and ending positions of the fields being imported.

At this point, you will be taken through a series of screens to determine whether you have used the standard codes for the age and sex of birds and if you are using standard codes for the status of bands (see below). Once you have completed the screens relating to the codes mentioned above, you will be asked if you want to save the import parameters to a file. If you answer **Yes**, you will be given the opportunity to save the parameters in a file that will have the extension ".sim". This file can then be used to load all the information you have just provided for this import.

Special notes for DBentry users

Users of DBentry (the data entry program usually used with the Canadian schedule program) can determine the contents, starting position and length of each field by starting DBentry, selecting the form that corresponds with the data file being imported, and typing **v** to list the name, starting column, and length for each field. You can also view (e.g., with Notepad) or Print the form which has an extension of '.fm', but this only gives the length of each field, and you will need to calculate the starting and ending positions yourself.

You also need to make sure that there are no stray characters at the end of the DBentry file. The end of the file, as determined by DBentry is not necessarily the same as determined by Windows. DBentry keeps track of the end of the file with a special character (ctrl Z), but there may be additional information after this that is not ignored by Windows programs. You must get rid of these characters before the Import, or they may create some bad records in your Band Manager file. To do this, you can open your file using a standard text editor (e.g., Windows Notepad, or a specialized program such as KEDIT), go to the end of the file, and delete any extra lines that do not belong (there could be several, some of which look like copies of the valid data). When you save the file, you may or may not be able to reopen it with DBentry depending upon whether trailing spaces were removed (you might want to rename it just in case), but you can still import it into Band Manager.

10.5 – Importing MAPSPROG Data

A MAPSPROG data file may be imported, but care must be taken after the initial import of that file to ensure that duplicate recapture records are not imported. Band Manager will ensure that you do not import any duplicate ORIGINAL banding records, but cannot ensure that duplicate RECAPTURE records are not imported. You may use the Limit the Import by Date option to restrict capture records to dates after your last MAPSPROG import.

You should only import the file that is created by MAPSPROG to be sent to the Institute for Bird Populations. Other files will not have had all of the checks completed.

10.6 – Finishing the Import

After you have completed the tasks for your specific import type, you need to confirm that the codes you used for Age, Sex, and Disposition (= Band Status) are the same as used in Band Manager (these will be converted automatically in a Band-Ops or MAPSPROG import).

On the first screen, you tell Band Manager what codes you have used to indicate various age codes in the import file. You must indicate whether you are importing alpha codes, numeric codes or both. If your codes match the standard codes in the North American Bird Banding Manual (those used in Band Manager), simply click **Done** to close this form. If however, you used something other than the

standard codes, this screen gives you the opportunity to enter what code you used to represent the standard code shown on the right-hand side of the form. Once you have filled in the conversion for all the codes you have used, click **Done** to proceed to the next form.

On the next screen, you tell Band Manager what codes you used to indicate various sex codes. You must indicate whether you are importing alpha codes, numeric codes, or both. If your codes match the standard codes in the North American Bird Banding Manual, which are listed on the screen, click **Done** to close this form. If you have used different codes, click **No**, and enter the code you used to represent the standard code shown on the right-hand side of the form. Once you have filled in all the codes you have used, click **Done** to proceed to the next form.

On the next screen, you tell Band Manager what codes you used to indicate various Disposition codes. The values used in Band Manager are listed on this screen (see **Disposition** under **4.2 Entering Individual Data Fields** for more information). If your codes match those, click **Done** to close this form. If you have used different codes, click **No**, and enter the codes you did use that correspond to the standard Band Manager code shown on the right-hand side of the form. Once you have filled in all the codes you have used, click **Done** to proceed to the next form.

At this point, the five “non-Band Manager type” imports become the same again. Band Manager now tells you it is importing the files. This could take a while depending on how many records you are importing. Eventually, you will see messages indicating that Band Manager is checking the contents of each field. This is equivalent to the Field Level Check that is provided in the Utilities Menu. See **Section 13.5** for information on interpreting messages in this section, and for dealing with fixing them.

If all of your field level checks pass (or you make all necessary corrections), Band Manager informs you that the data have been imported, and tells you the number of records that were imported. It then asks if you want the Band Inventory updated and the import completed. Click **Yes** to continue. Band Manager then checks how many of these records already have bands in the inventory. It informs you how many bands need to be added to the inventory to complete the import. Click **OK** to continue, or **Cancel** the import. Band Manager also checks to see if any of the band numbers in the import file are **ALREADY** in the band inventory **AND MARKED USED**. If there are any, then you will be notified, and asked if you want to skip them, or **Cancel** the import.

Next, Band Manager asks you to provide the date on which all of the bands in the import file were scheduled (to update the band inventory). If the records **have** been scheduled, provide a date. If they **have not**, then do not provide a date, and simply click **Done**. Band Manager will then complete the import. At this point, your file will have been completely imported and all field level checks (including user-defined if you had any) will have passed. However, the records will all be marked as **Unchecked** for the purposes of scheduling. This refers to the Record Level checks that are normally done during data entry. You can do these checks in batch mode in the Data Entry and Editing form. See **Section 4.4** for more information on running a batch check.

10.7 – Importing Band Manager Data

An import of Band Manager data is different from other data types. A Band Manager import may need to be done if you have been entering data to Band Manager on more than one computer. This could be the case if you have several volunteers entering data or have sub-permittees that normally enter their

own data and then send it to you. In this case, you probably want to incorporate the data from one computer into the other.

If this is the case, then you will need to import the Band Manager data INTO the new copy of the program. If you simply attempt to open a file from another computer, you will encounter problems because the band inventory and other inventory files will either not contain the bands, or will not show the correct status for those bands. The Band Manager import feature will accomplish this. This option is found with the rest of the import options on the Import screen.

To import a Band Manager file, you need to have both the **.dbf** and the **.set** files with the same name from the original computer. They are found in the 'userfile' subdirectory of the bandmgr directory. If you use custom remarks, then you should also provide a copy of **comments.dbf** from the original computer (found in the bandmgr directory). Copy these onto the receiving computer's hard disk (or leave them on a floppy disk, but this will result in a slower import), but **NOT IN THE BANDMGR OR USERFILE DIRECTORIES**. You must not already have a band manager file on the receiving computer **with the same name** in the userfile or bandmgr directories. If necessary, you can use the Utilities/File/Rename option in Band Manager to rename one of the files (DO NOT rename the files any other way, or the Inventory will be corrupted). Now run Band Manager, and click **Utilities** and then **Import**. From the option list choose **Band Manager**. You will now be prompted for the name of the file that you are importing. You can navigate to the proper directory and choose the appropriate .dbf file to import. Choose the file and click Open. You will now be prompted for a NEW name to call this file in this copy of Band Manager. You may use the same name as the file that you were importing if you wish (but a file with the name of the source CANNOT exist in the userfile directory BEFORE the import).

Band Manager then attempts to import the file. Band Manager checks and notifies you how many records are to be imported, and then checks if any of the band numbers are already in the band inventory and marked USED. It is OK if any of the bands are in the inventory, but if they are marked used, then Band Manager will assume that you also have corresponding data, and you cannot import new records for those band numbers. You will be notified of the number of such records, and given the option of skipping them, or canceling the import.

If you proceed, Band Manager will add any bands to the inventory that are necessary, update the inventory, recapture inventory and replaced tables, and finally create the new file in the userfile directory. You may then exit the import module, and open the imported data file.

Before you will be able to schedule the data that you have input (if you left the schedule date blank), you will need to do a batch check on the imported data. To do this, open the imported file with the Data Entry and Editing form, and click **Check**. See **4.7 – Data Integrity Checks** for further instructions.

11.0 – Exporting Data

Many of the forms, reports and summaries provide you with the option to export data. This is a useful function if you want to use the information in another software package for more complex data analysis or to create visual displays (e.g., graphs) of the data for reports. Export works in a similar manner in all places in the program. Export is available at any time that you see an **Export** button on a form, or you are asked what you would like to do with a report (usually print or export).

Band Manager cannot provide for exporting to all other data types. If you want to export to a non-standard type, you may have to export to ASCII delimited or SDF (fixed column) formats, or one of the data base or spreadsheet formats and then import the data to your preferred application. See the manual or on-line help for your preferred software for instructions on importing data. You may be able to import from one of the export types available in this program other than ASCII (such as importing an Excel file into Paradox). Band Manager can export to Excel, Lotus 123 and dBASE formats as well as the two ASCII formats.

To export data, click the **Export** button in the form you are exporting from. Remember to Filter your data first, if you only want a sub-set of the data. You also have the option of exporting the results of a report. In this case, choose **Export** when prompted for an action after viewing a report.

If you chose Export from the Data Entry and Editing form or from an “All Captures Across Files” report, then the next screen will be the Export Setup form where you select the fields that you wish to have exported. This works similar to printing data from the Data Entry and Editing form (see **4.6 Printing Data**). The Export Setup screen shows you a table of all the fields in your data file, in the order that you displayed them on your Data Entry Screen. Select fields for exporting by entering a number in the **Order** field of this table. The number that you provide will be its position in the export. Only place numbers in the **Order** column for fields that you want to export. You can clear the values from the **Order** column by clicking **Clear**. Click **Export** when you are finished choosing the fields for export.

Next (first in some cases), the Export form will appear. The name of the file that you are exporting will appear at the bottom of the form. To complete the export, choose the export data type then click **Export**. You will be prompted for a file name for the new exported file, and then the file will be exported. **Please note:** The program will save all export files to the default export subdirectory called “export” (which has the full path of c:\bandmgr\export if you accepted the default directory during installation). Only export files and schedule output files are placed in this directory by Band Manager. You can save these to a different directory, but we advise against saving them anywhere else within the Band Manager directory (by default c:\bandmgr) to avoid damaging any program files.

You may export to several formats at one time; simply select one after another. You might want to do this to try several formats for an import to another program. Once you have exported to all of the formats that you want, click **Done** to return to the previous form.

12.0 – Trouble Shooting and Data Security

This section of the manual deals with protecting your data, restoring data that may have been damaged through some event such as a power outage or program error, and what to do if a program error occurs. It also explains a few strange behaviors of the program that are not a result of Band Manager itself.

12.1 – FoxPro Limitations

Band Manger was written using Visual FoxPro 3.0 as the base language. Band Manager is in effect, a FoxPro program that you are using in a “run-time” environment. This means that although you are really using FoxPro, it is in a package that can only execute a compiled FoxPro program (Band Manager), which is why you do not have to buy FoxPro to run Band Manager. Using FoxPro had many advantages for development (time savings, the ability to run in several operating systems, many predefined functions, etc.), but it also comes with some quirks and limitations.

One of these is a limitation of the operating system that FoxPro 3.0 was written for. This limitation is the restriction of file names and directories to a maximum of eight characters, with only letters or numbers as characters (no spaces or symbols). Some beta testers who are using Windows 95/98 have asked why they could not use file and directory names of any length (as Windows 95/98 allows). The reason is that this version of FoxPro was written for Windows 3.11, which DOES NOT allow file names to be longer than 8 characters. We elected to use this version of FoxPro rather than a newer version written specifically for Windows 95/98 so that we could provide Band Manager to users who are still using Windows 3.11. As well, FoxPro 3.0 can be compiled into a Macintosh compatible program, which later versions of FoxPro cannot. We anticipate that after we complete the conversion to the Macintosh, the next major release of Band Manager will be upgraded to a more recent version of FoxPro, allowing you to use longer file names.

Another quirk that we have noticed is that when we open the Print dialog box (where you confirm the printer that you are sending data to), the number of pages shows as 9999. This, of course, is hopefully not accurate, but is an inconsistency that is found when using the program with Windows 95/98. Simply ignore the number of pages indicator on the print screen.

Some users have attempted to access Help while the “Open File” dialog box was open. Unfortunately, Band Manager Help does not function properly from these dialog boxes. When you are selecting a file to open, you are actually in a Windows dialog box, not a FoxPro (Band Manager) one. For this reason, Band Manager has no control over the system when you click Help from one of these boxes. The Help window is actually opened, but it is *underneath* the Open File window, so you cannot see it!

12.2 – Program Errors

Band Manager has gone through a long period of development including a fairly intensive Beta test. Beta testers have found many program bugs that we have fixed but, as with most complex software products, there are likely to be some remaining program errors that we have missed.

If you experience a program error, don’t panic. In most cases, a program error will not result in any significant loss of your data. A great deal of effort went into the programming of Band Manager to try to protect your data from program crashes, power outages, and so on. If a crash occurs, you will

get a message indicating that an error had occurred, along with details concerning what caused the error. After writing down the information in the message, click **OK** to shut down Band Manager (in some cases you may have to click **OK** two or three times before the program exits). Band Manager shuts down to provide the best chance of protecting your data. When a crash occurs, Band Manager attempts to close and save all files that were open at the time. This should save all of your data with the **possible** exception of the last record you were editing or entering. We cannot guarantee that your data will not be damaged, but we have gone to great lengths to try and protect it. Even if Band Manager is NOT successful at shutting down the program without damage, we have provided the Rebuild Index utility to repair any damaged files (See **12.4 Rebuild Index**) and the Backup Utility to help you make sure you always have a recent copy of your data (See **12.3 Backups**). If you use these two features, you should NEVER lose more than a day's worth of data, even in the worst case scenario.

In the case of a power outage, Band Manager cannot be shut down normally, or even in the same manner as with a program crash. This means that the tables that were open at the time of the power outage will not have been closed properly, possibly resulting in a damaged index file. However, Band Manager saves each banding record as you finish editing or entering it, and so you should still not lose more than a record or two. You may, however, have to use the Rebuild Index utility to rebuild the indexes for those files (See **12.4 Rebuild Index**). Many computer users use battery backup systems for their computers to protect against such incidents. These devices not only maintain power for several minutes in the case of an outage (enough time to exit properly if the power does not come back on within a minute or two), but also protect your computer from the fluctuations in voltage that can be common in some areas. These fluctuations may not be noticeable to you, but they can damage your computer over time. Regular surge protectors do not protect against these fluctuations, which are often power “dips” rather than spikes. Of course, they cannot protect you from turning off the power switch by mistake!

We are committed to maintaining Band Manager for its users, including fixing any program errors that are found and providing updates. For this reason, please inform us of any errors (or inappropriate behaviors) that you experience. You may be the first person to find a particular bug! If a program error or crash occurs, you should copy down the information provided on the program error screen. This screen gives you several lines of information including an **Error Number**, an **Error Message**, the **Code** that caused the error, and the **Program** that the error occurred in. To help us correct the problem, please copy down each of those pieces of information and send them to us (E-mail: bandmgr@usgs.gov). As well, please describe what you were doing when the crash occurred such as “entering data into the band number field”, “just clicked the New button” etc, along with how long you had been in the program (“first record”, or “entered many records”). With all of this information, there is a very good chance that we can quickly determine the problem and correct it. If the error is significant (interferes with normal use of the program) then we will try to provide everyone with an update right away. If the error is unlikely to occur very often, or few users are likely to encounter it, we will correct the problem in the next update. See **Section 15.0**, for information on how we will provide updated versions of the program.

12.3 – Backups

A very important precaution that all users should take, is to back up their data. Band Manager program files can be reinstalled if they are lost, but your banding data files, band inventory and the look-up tables you created cannot be. If your hard drive fails, your computer is stolen or in a fire or any other

unforeseen event causes your files to become lost or damaged, you will wish that you had another copy of your data. Occasionally the loss of data can even be the result of an error by the user. This could occur if you accidentally delete the wrong file, or do a global change, append or some other operation without first setting the correct filter.

Band Manager has its own backup and restore feature. It allows for backups to a floppy disk or other peripheral storage device (such as a ZIP or JAZZ drive, tape drive, etc.) or to a network server. This backup feature allows you to backup your data files and lookup tables, and the other system tables that constantly change (such as the band inventory). If you are backing up to a floppy disk, this feature is only useful if your largest data file will fit on one diskette. For many users, this will be the case, since even a few thousand records should fit on one diskette. If your files are too large to backup onto a floppy disk, and you have no other peripheral that you can back up to, then you may need to use another program to do your backup. You might want to use Band Manager to backup your data into a separate directory on your own hard drive (to protect against user errors) and then use another program (such as PKZIP or WINZIP) to compress the files and copy them to a diskette or other medium. Alternatively you can use a backup compression utility, such as the one provided with Windows. Check the on-line help under **Backing Up with another program** for details on using other programs, and a list of files that need to be backed up.

Back up regularly. If on any given day you have entered new data or changed existing data, then you should do a backup at the end of that day. The Band Manager backup feature works fairly quickly, requiring very little of your time – and takes much less time than retyping all of your data! See the Online help under **Backup Advice** for some notes on how often you should backup, and precautions that you should take.

12.3.1 – Backing Up with Band Manager

Click **Utilities** and then **Backup/Restore** from the Main Menu to open the **Band Manager Backup and Restore Utility** screen. From here, you have the option of backing up to your A drive, B drive (if you have one) or another location. If you choose the third option, a text box will appear where you can type the drive letter of that peripheral, and another for a directory name (if you want to save to a subdirectory). This subdirectory option is particularly useful if you want to backup to a directory on a local area network, in which case you would enter the drive letter, and directory name on the server where you want your backup to go. Enter the drive letter only (no colon or "\"). If you use a subdirectory, enter the name of it without a leading or trailing "\" (i.e., "backup" or "data\backup" but not "\backup", "\backup\" or "backup\").

Your next set of options is to backup a data file (one banding data file is actually four files), backup the band inventory and other system files that are modified by you, or to backup a data file and all of its associated user-defined lookup tables. This third option is provided separately because you may not need to backup your User Defined Lookup Tables every day if they did not change. You need to do this only if you have changed the contents of the lookups, or added any new ones. Choose one of the options (make sure a disk is in the drive you choose) and click **Backup**. You will then be prompted for the file to backup (with options 1 and 3). Choose a file, click **OK**, and the backup will start.

If a second diskette is required, you will be prompted for it. This could happen if you already had data on the disk, or if you had a very large data file. Most users with a single season's data in a file should be able to fit the data file as well as the band inventory and other system files onto one diskette.

After conducting a backup, it is often a good idea to store the backup disks in a location separate from the computer (in case of fire or theft). See **Backup Advice** in the on-line help for further advice. If you changed the destination for your backup, then as you leave the backup form, you will be asked if you want to save the new destination as the default. If you answer **Yes** then the next time that you open the backup utility, that destination will be designated (including a different drive and directory if you set those up).

12.3.2 – Restoring Data with Band Manager

If you have kept good backups of your data, then you can restore it from the backup in the event that you accidentally change or delete your data, or if your hard drive failed, etc. If you used the Band Manager Backup and Restore Feature to back up your data, then use the Restore part of that feature to restore it. If you used another program to make your backup, see the online help for that program to restore the data. **Be very careful restoring data** - basically you are overwriting what is on your hard disk, which is non-reversible. **If you have entered new data since the last backup, those data will be lost.**

DO NOT attempt to use a backup to copy your Band Manager data onto another computer that is also running Band Manager. To transfer Band Manager data from one computer to another, use the Band Manager Import feature (see **Section 10.7**). When importing data, Band Manager ensures that all of the program files are updated and maintained properly, such as the band inventory, recapture inventory, custom remarks tables and so on. Using a backup and restore to transfer the data will result in corrupt data, and could result in loss of all the data originally on the other computer.

To restore data, place the disk with the backup files in the disk drive, and open the Backup and Restore Utility. Select the appropriate drive letter on the screen, and then choose the appropriate set of files for restoring (Data File, Band Inventory and Other System Files, or Data File and Associated Lookups). Then click **Restore**. You will be asked to confirm before the program continues. You will notice that when restoring a data file, the program prompts you to choose the data file off of the disk for restoring - and it will be shown as a file with a “.set” extension. This is normal. Choose the file (**double click** on it or select it and click **Open**). One data file (the 4 associated files) will be restored at a time (along with the user defined lookup files if you chose the third option). **If you restore your band inventory, then you should also restore all of your data files that have changed since the date that your inventory was backed up.** The reason for this is to ensure that the inventory and the data files all match.

12.4 – Rebuild Index

Band Manager uses a variety of data base tables (.dbf) as well as index files (.cdx, .ind). Index files are required to sort your data. Sometimes, these index files can become damaged, such as through a power outage, a program error (crash) or by a user attempting to open the file in another application. You should never attempt to open any of the Band Manager files in another application, because even if you can open the file, the index will generally become corrupted, and the data file might also be changed in such a way that it cannot be opened any more by FoxPro. As well, without Band Manager control of data files, proper updating of the Band and Recapture Inventory will not occur, which could cause the entire data base (not just the one file) to become corrupt. If you want to use data in a different program, always export them first.

Usually if an index file is missing, Band Manager will detect it and recreate it automatically. However, if you get a message about a missing index file, you can follow the same directions as below for a corrupt or damaged index file.

If an index file has been damaged or corrupted, Band Manager will attempt to fix it immediately, but may not be able to do so. At this point, you will generally get a program error telling you that Band Manager encountered a corrupt index. When this happens, Band Manager will shut down to prevent damage to any other files. At this point, you should restart the program, and use the Reindex feature to correct the problem. Click **Utilities** and then **Rebuild Index** from the Main Menu to open the Reindex Utility.

From here you have the option of rebuilding the indexes of a data file, or the Band Manager program files. If you received the index error while opening a data file, then first attempt to reindex that data file. If that does not work, then reindex all of the program files (or do both at this time). To reindex a data file, click **Data File**. You will be prompted to select a data file for reindexing (in the same manner that you would open a file). Choose your file, and click **Open**. You will be notified when the file has been reindexed.

To reindex the Band Manager program files, click **Program Files**. You will be asked to confirm, and then all of the program files will be reindexed.

This should clear up any index problems that you have. If not, you may have corrupted the data files themselves, and you may need to restore files from a backup.

13.0 – Utilities and Time Saving Features

Band Manager has a variety of helpful features and time saving utilities that you may want to use. These features can make it easier to locate particular data, help you maintain your data files, and allow you to make changes to fields in many records at one time. There is also a feature for doing a batch field level check – useful if you modified any of your lookup tables after data entry.

13.1 – Searching in Band Manager

Many of the forms within Band Manager have data search capability. The search or **Find** capacity is useful for locating specific band numbers in the inventory or in a data file, locating the name of a bird in the bird lookup table etc.. Almost all of the fields can be searched. If a particular form has this feature, the **Find** and **Again** buttons will be located at the top left of the screen, next to the Help and About buttons.

To use the Find feature, **place the cursor in the column or field that you want to search** and click **Find**. The Find window will be opened for you to type your search criteria (the number, date or letters that you are searching for). Your typing will format to the data type of the field that you are searching in (i.e., you must type a date if searching a date field, a number in a number field, etc.). The Find feature can search your data for a field that matches your search criteria EXACTLY, or it can look for a Partial Match. Select the type of search to be done by clicking **Exact Match** or **Match Any Part** in the option box above your search criteria.

An **Exact Match** search will search for a field that exactly matches your search criteria, letter for letter (except that it is not case sensitive). If you search to **Match Any Part** then you can enter search criteria that need only match part of the field. For example, you could search for “duck” to find any records with the word duck in that field (such as Wood Duck, Black Duck, etc.).

If you open the Find window with your cursor in a character-type field, then Band Manager will have already selected **Match Any Part**. You may change it if you want to search for an **Exact Match**. When you are searching a number or logical field, the **Match Any Part** option will be disabled and Band Manager will only search for an **Exact Match**. Finally, if you open the Find window while on a Band Number field, then Band Manager will default to the **Exact Match** search and will enter the “-“ for you while you are typing in the band number. If you select **Match Any Part** for a band number field, then you need only type in a partial band number and Band Manager will NOT automatically fill in the “-“ for you. Do this if you wish to search for a prefix or suffix only.

After typing the search variable, you can simply press **Enter** or click **Find** and the Find form will close and search for your variable. If your search was successful, your cursor will be in the same column, sitting on the record that matched your search criteria. If you want to repeat your search for the next match, click the **Again** button.

If a character search was unsuccessful, try again with a **Match Any Part** search with less text. For instance, if a search under common name for "forsters tern" failed, re-try with “tern” or “forster”. Your search for the entire name may have failed due to a spelling problem with forsters (which is actually spelled “Forster's”).

13.2 – Find Band

Another shortcut that is not on the Data Entry form itself, is the **Find Band** option under the **Utilities Menu**. **Find Band** allows you to quickly open the correct data form and view a specific band number. For instance, say you found a dead bird with a band near your banding station. You believe you banded the bird yourself and want to check, but are not sure which file it is in, because you do not know when it was banded. Open the **Utilities** menu from the Main Menu, and click **Find Band**. A small window will open for you to enter the band number.

After entering the complete band number, click **Open** (or simply hit Enter as the cursor automatically moves to the Open button after you type a complete band number) and Band Manager will search your band inventory for that band. If it finds the band, and the original banding record is available, Band Manager will open the Data Entry and Editing form with the appropriate file, and automatically go to that band number. If the band is not in your inventory, or was not used, then you will get a message to that effect. This is also handy to locate a record that you wish to edit.

You can also find a band by opening the band inventory form, and searching in the band number field. If you find it, the **Data File** button will show you the file name and optionally open the data file and display the banding record.

At present, neither of these approaches will find Recapture records of bands that are not in the Inventory (e.g., Foreign Recaptures). One way to find these is to type the information, as a recapture, into a new banding record, and then click History. You can always Delete your new record afterwards, if it did not contain real data.

13.3 – Global Change Feature

The Global Change feature in Band Manager is used in the Data Entry and Editing module (single record view) to change the values in a field from one value to another. For example, you could change all of your old RSTO alpha codes to EATO. Another example would be changing all unknown aged Black-capped Chickadees banded in January to AHY (if you had accidentally entered those birds as unknown age!).

The global change feature works best in conjunction with a filter. In fact, you must be VERY careful to use the proper filter so that you do not inadvertently change records that you did not want to. The global change feature will change ALL RECORDS in your table that match the current filter, and have the value that you indicated to change in that field. You CANNOT undo a change if you make a mistake.

To do a global change, **FIRST set the filter** on your data form so that only the records that you wish to have changed are selected. Next, click your mouse on the field that you need to change. Then, click **Global**. The Global Change form will open, and prompt you for value to replace, and the new value that all occurrences of the original value will be changed to. So to change all incidences of RSTO to EATO, enter RSTO in the left-hand text box, and EATO in the right hand box. Then click Do It! The Global Change form will automatically fill in the left-hand box with the contents of the selected field in the current record. You may change it if you wish to replace a different value.

For safety sake you will be asked to confirm the change. If you do not have a filter set, you may be informed of that when asked if you are sure. **PLEASE READ ALL MESSAGES CAREFULLY AND HEED ANY WARNINGS**. Once you have completed this operation, it cannot be reversed. If

you have any concerns, click **Cancel** and re-check your current filter before completing the global change.

Not all fields have the global change capacity. Some fields, such as Wing and Weight are not considered suitable for a global change since it is highly unlikely that you would want to change all instances of a particular wing or weight value to another. For the same reason, user-defined fields with a species/sex - max/min lookup are also excluded.

13.4 – User Table Management

Since the data files that you use in Band Manager have a specific format unique to this program, we have provided some features for maintaining them. From the Utilities Menu, click **File** to open the User Table File Management Menu. From this screen, you will be able to delete, append to, empty or rename any of the tables **that you created**.

Please Note. If you delete or rename a Band Manager data file from outside of the program, then your complete Band Manager system will probably become corrupt. The reason for this is that all of the records in a data file are referenced in other Band Manager files (such as the band inventory, recapture inventory etc). If you rename a file using File Manager, Windows Explorer or some other program, then Band Manager will not be able to find some of your records. The same would be true if you deleted a file. Renaming and Deleting files using the Band Manager utilities, will ensure that all of these files are kept up to date.

Click **Rename** to change the name of one of your tables. You will be prompted for the file to rename, and a new name to call it, and then the table will be renamed (provided that there is not already a file with that name).

Click **Delete** to PERMANENTLY delete a table that you created. This option will open another form where you can decide to delete in one of three ways. The first option will delete all the records from the designated table (you will be prompted for the table to delete) and then update the band inventory to show that although the bands are used, that there is no file with them. You might use this option if you need to make space available on your hard drive (by deleting the data file), but want to keep the bands marked as having been used in the Band Inventory. However, we do not recommend doing this, as you **WILL PERMANENTLY LOSE THESE DATA** and they will not be available for recapture checking, data analysis, or any other purpose. The second option will also delete the records, but will mark the bands as unused in the inventory. This option might be used if you had been entering 'dummy' data with real bands while learning to use Band Manager, and simply need to delete the fake data. It might also be used if you created your inventory ahead of time, and then imported records with those band numbers, but something went wrong with the Import and you needed to redo it (for example, you might have incorrectly set the decimal point for wing length). The last option deletes all of the bands, and also removes them from the inventory. Users may choose this option if they had attempted an import that did not work correctly, and they wanted both the banding records deleted AND the corresponding bands in the inventory removed (because these had been added during the Import). In all of these cases, the data file is also deleted. If you plan to try the Import again, you may prefer to use the Empty feature, which has the same options with respect to the inventory, but retains the empty file afterwards. In all cases, if you proceed, then that table and all of its data will be permanently deleted.

The next option is the **Empty** option. This is similar to the Delete option, but will leave the data table intact. As with the Delete option, the Empty feature has three options for how you want the band inventory updated. The Empty option may be used for an import that failed, where you want to use the same table again for the next attempt (so you do not have to create the table again).

Another option in the File Menu, is to **Append** data from one file to another. This means that you could remove all (or some) of the records from one data file, and add them to another data file. You might do this at the end of the year if you wanted both the spring and fall data dumped into one data file. Click **Append** and you will be prompted for the source file, and a destination file. You will then be asked if you want restrict the Append with a Filter. Click **Yes** if you wish to, and the Filter Designer will open for you to enter the criteria that bands need to match before they will be moved. You will be asked to confirm the Append one last time, and then the records will be moved. Using appropriate Filter criteria you can split a single large file into several smaller files (for example, one for each location) if you create the appropriate empty files ahead of time (presumably using the Copy structure option). Or by not using a Filter, you can move data from several small files into a single large file (you can later **Delete** the empty files if you no longer need them).

The final option on the File menu is the **Fix Band** option. This option is used to reset a previously used band to UNUSED in your band inventory. THE ONLY TIME that you should use this option, is if the program crashed during data entry and the banding record was lost. If this happened, and you cannot input it after re-starting Band Manager (because Band Manager says that the band is used), then first check that that banding record is in fact NOT in your system (search for it). After verifying that the record is not there, use the **Fix Band** option to change the used status to false.

To change the used status, click **Fix Band**. A form will come up where you will enter the band number to be reset. Enter the full band number (and check it before proceeding!). You will be asked to confirm and then the band status will be changed, and you will be returned to the File menu.

13.5 – Field Level Check

The Field Level Check option is found on the Utilities Menu. It is used to run all of the field level checks on a data file. These are the checks that Band Manager normally performs on fields as you enter the data (valid species, sex or age code, locations, remarks, etc.) plus all user-defined field level checks (value or range checks – but not species/sex-max/min checks).

This option **should not be necessary** for most users **unless** they have changed the field level checks for one or more user-defined fields (added or changed any range, value or character level checks), or changed or deleted any Remark or Location codes. In these cases, you may want to run the Field Level Check to ensure that all of your previously entered data comply with your new Lookups. To do this, click **Field Level Check**, and select the appropriate data table to run the checks on. Band Manager will check each field in sequence and prompt you when it finds inappropriate data. In some cases, you will be shown the band number of a record with bad field data, and the invalid information. Provide a replacement value which Band Manager will insert.

If a field such as alpha code has an invalid entry, then you will only be shown the invalid data, and asked to provide the actual replacement information. You may, however, click **Details** to view all of the banding records with the invalid code. See the on-line help for details on each of the screens that may be shown during the field level check (press F1 when the screen is shown).

The Field Level Check is used by Band Manager itself during an import to check that all fields have valid data. This, however, is automatic and users will not have to run this option manually.

14.0 – Reports

Band Manager has a series of basic reports for summarizing your data. These reports can be found in the Reports Menu (click **Reports** from the Main Menu).

Most reports (with the exception of **Measurements**) can be done on a combination of one or more data files. When you choose a report, the Pick File screen will open so that you can select individual files to be added to your report, or choose **All Files**, to include all files that have banding data associated with them (as with schedules). You may also set a filter on the data by clicking **Filter** from the Pick File screen. Once you have chosen your files and set a filter (if you want one) click **Done**. In most cases, you will then be asked if you want the resulting report sorted by species number (AOU) or by alpha code. Choose one of the options and the summary will be produced. It will be displayed on screen for you to view. Click the Close Preview button or the X in the top right corner of the report, or press **Escape** to close the preview. You will then be asked if you wish to print or export the report, or neither (Done). The following is a summary of the available reports. With a little imagination, you can combine a data filter with these various reports to produce very specific data summaries to suit your needs. If you cannot produce a summary that you require with Band Manager, consider exporting the data that you want summarized, and importing them to another application where you can produce the exact summary that you need. If you have ideas for other reports that you think would be useful to many banders, you can suggest them (E-mail: bandmgr@usgs.gov) and we may add them to a future version of the program.

14.1 – All Captures Across Files

This report combines all records in the files that you selected to provide a complete capture summary for every band number. Any replaced, added to or double bandings are all summarized by their master band number (the first number used on the bird) so that all of the captures of each individual bird are shown by a single band number (not necessarily the number currently on the bird). The records are sorted by band number and then date so that the original banding shows first, followed by all of the recaptures in order. This report is useful for producing an export file of all captures of every bird of a particular species, for example for a mark-recapture survival analysis. At present, it is limited to the pre-defined fields, because user-defined fields may differ in meaning from one file to the next. If you want to export data for all of your user-defined fields, you need to do this from the Data Entry screen for an individual data file.

14.2 – Birds per Bander

The Birds per Bander report is a summary of the number of birds captured by each bander. The report summarizes the number of captures by the Initials on each banding record. The full name of the bander is also provided if those initials are present in the banders table. As with other reports, you may add one or more files to the data to be summarized, and you may filter the data. Once the report is complete, you may print the report or export it. If you want a breakdown of species for a particular bander, you should use one of the other reports and filter by Bander.

14.3 – Species per Month

This summary conducts a cross tabulation of each species, giving the number that have been captured in each month of the year. If you do not set a filter, the summary will include all years in the data file(s) (e.g., the total number of American Robins banded in March across all years). The total number of

individuals banded for that species is also provided, so that you can see the proportion banded in each month compared to the total. If you filter for a specific year, then your summary will be only for birds in each month of that one year. You may also want to filter for a particular disposition code (e.g. new birds).

14.3 – Number of records per species

This report is a simple summary of the number of banding, recapture, and other types of records per species in the files that you select. This may be a useful summary for annual reports in which you want to provide a simple table of the number of each bird that you banded in a season (remember to Filter by date if several seasons data are in the same file).

14.4 – Summary of Age and Sex for each Species

This is a summary of the number of individual birds of each species and age group that fall into each of the valid sex categories (U,M,F). It is sorted by species (alphabetically), then age, with separate columns for the numbers in each sex within each species/age category.

14.5 – Measurements

The Measurements summary report works a bit differently than the other reports. It allows you to do some basic statistical summaries on your data, but only works on one file at a time. When you choose Measurements, you are first asked for the file with the data you want to summarize. Choose one file and click **OK**. You will then be shown a summary of available fields that you can summarize. You can only choose a numeric field. For instance, you might choose the wing chord field. Place your cursor on the field of your choice, and then click **Done**. You will then be asked if you want to filter the data to be summarized. Click **Yes** or **No**. If you chose Yes, the filter designer will open for you to build your filter. Once you have done that, Band Manager will produce the summary.

This summary gives you the Sum, Mean, Standard Deviation, Total Number, Min and Max by species for the field that you chose. For some fields (e.g., time), some of these calculations may be meaningless. However, since you can run this summary on any numerical field, including user-defined fields, you are responsible for determining which fields provide meaningful results.

Beware that if you are summarizing measurements, such as Wing or Weight, and you have zero values in your data, that these will be treated as valid measurements because Band Manager does not know which numeric fields allow zeros as valid values, and which do not, especially among user-defined fields. To avoid this problem, you should enter .NULL. values instead of zero (see **Null values** under **4.5 Miscellaneous Features**).

15.0 – Upgrades

Periodically there will be a need to update Band Manager. This could be an update to provide you with newer versions of the lookup tables that are provided with Band Manager, or when bugs are fixed or minor changes or improvements are made to the program itself. For example, new lookup tables may be needed whenever there is newer information on aging/sexing criteria or on band sizes, or if the taxonomy changes (e.g., if one or more bird species are reclassified by the American Ornithologist's Union). There will also be periodic updates to fix minor bugs that have been reported and to further refine the program to make easier to understand. If a major bug is found, then an update will be provided immediately.

When an update has been developed, all users will be sent a notice by E-mail (those who have provided their banding office an email address) that there is an update on the World Wide Web to be downloaded. Specific instructions on where to find the update will be provided with the email. Usually an update will require downloading a file from the web and running it. The file will be a self-extracting program that will do the update on your system for you.

Since updates may change data verification checks, or change the information that is placed on schedules, it is imperative that you download these updates when you receive notice of them. Failure to do so may result in your data being unacceptable to the banding office/lab, requiring you to resubmit your schedules.

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Finally, if we have missed anyone, please accept our apologies – and let us know so that we can include the missing names in future editions of the manual/program!